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ORIGINAL LECTURES.

CLINICAL LECTURE

ON THE ASEPTIC AND ANTISEPTIC TREATMENT OF WOUNDS.

Delivered at the Pennsylvania Hospital. Opening Lecture, October 2.

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One of the Attending Surgeons.

GENTLEMEN,—I have a few cases to present to you this morning which I think will be of interest, but before doing so wish to refer to the method now pursued in the treatment of wounds in this hospital. When I was a resident physician here, more than twenty-five years ago, and during the succeeding years as attending surgeon, the plans of treatment were very different: they were constantly changing, and varied with the convictions or whims of the surgeon on duty, in the hope of securing better results after surgical operations and in the treatment of wounds generally. Does not the very fact that there has been no one well-defined plan followed here or in any other hospital, or by any surgeon, show that no plan was universally acknowledged to be best and that all were more or less unsatisfactory? I can recall cases that were attended with bad results, and many that ended fatally, which under the present mode of wound-treatment would unquestionably have recovered, and lives were lost which should not even have been imperilled.

Within the last few years a great change has occurred. The principles of antiseptic surgery as originated and developed by Lister have now become firmly established, and are revolutionizing wound-treatment. This system, as it may now be called, has been so perfected that it has reached a point which permits me to show you to-day results entirely unattainable by any other means known among mankind.

Antiseptic surgery had never been thoroughly introduced in this hospital until within a comparatively recent period, and this new departure has been effected chiefly through the great interest in the subject and attention devoted to it by two of our resident physicians,—Dr. Charles B. Pen-

rose and my son, Dr. Thomas S. K. Morton. The results of their careful and scientific work have necessitated the general introduction of antiseptic surgery in dressing wounds, whether accidentally inflicted or made by the knife of the surgeon.

To these gentlemen too much credit for perseverance and skill cannot be given. I believe that you will see as a result of their labor results which will convince you that antiseptic surgery, if properly carried out, is *scientific surgery*, and to my mind *there is none other*. The first case to illustrate my remarks is this patient, aged 46 years, who leaves the hospital to-day perfectly recovered. He was admitted on the 8th of September last, with a compound, comminuted, depressed fracture of the skull in the right parieto-frontal region. In this case the trephining operation was done under strict antiseptis. The man was up and about the ward on the fourth day; and when the primary dressing was removed it was found that the catgut sutures placed to keep the wound together, as well as the catgut drain, had entirely disappeared, and complete primary union had occurred.

In the second case, one of old ununited fracture of the radius, with considerable absorption of bone, following a simple fracture, where several attempts had been made to obtain bony union, but without success, I was satisfied that there was no use of repeating the old operation, because there was a gap between the ends of the radius. In order to fill this up, I was obliged to resect the ulna. I therefore first removed an inch and a quarter from the lower third of the shaft of the ulna; this brought the ununited ends of the radius together, which were freshened by sawing off the ends of the bone. The ends of the radius and ulna were then united by chromicised catgut ligature. This operation was performed twelve days ago under strict antiseptic precautions, as in the former case. There has been no rise of temperature since the operation, and the wound has not been disturbed since the first dressing was applied. The patient has been about the wards since the second day, and he is and has been perfectly well in all respects.

Cases of amputation, when dressed in the manner described, are allowed to go for two or three weeks before the primary dressing is taken off, when complete union

is found to have occurred. In fact, the dressings are usually not disturbed until the patient is considered ready to go out. Curiosity tempts the surgeon to examine these cases, but the first dressing should not be removed unless absolutely demanded by a rise of temperature.

Now, these are facts, and they are circumstances which I have not seen attending the amputations or the operations of surgery of former years. To what must be attributed these wonderful results? Why this contrast with the old practice, often requiring weeks and months in bed, with suppurating wounds and daily dressings, and occasionally hemorrhage and exhaustion and surgical fever? The question is answered when I tell you that it is due to antiseptic surgery and aseptic appliances. But, gentlemen, antiseptic surgery means scientific *antiseptic* surgery, and not partial antiseptic surgery. If you adopt antiseptics as a principle, it must be carried out absolutely. Do not omit in your treatment the minutest precaution which might assist in securing the results which you desire to obtain, and which you always will obtain if you are not negligent.

Certain facts must be borne in mind. If you could get absolute cleanliness you could get along without antiseptic appliances; but, as this is not possible, we adopt means which prevent contamination and infection in our wounds. We have often unfortunate surroundings, especially in hospital practice, against the influences of which all our efforts at cleanliness are unavailing. We, therefore, must have agents which will destroy micro-organisms, which are present everywhere, and by their growth breed fermentation and disease.

I show you to-day what I mean by aseptic dressings, which are suitable for every case, and are of universal application. Let me remark, however, that if these statements which I have made to you are true, then the surgeon who does not carry out antiseptic treatment does not give to patients under his care that security against infection, disease, and even death, which modern science has proved to be absolutely sufficient. If the surgeon does not obtain the results which other surgeons who practise antiseptic surgery obtain, then he should be held responsible; such a surgeon will be known by his results. If his operations are followed by prolonged suppuration, erysipelas, or pyæmia, he

would, very likely, be condemned for not adopting the means which are at his command. These surgical complications are due to fermentation dependent upon parasitic organisms. The presence in the wound of these micro-organisms can absolutely be prevented by antiseptic dressings.

Certain agents are recognized as germicides,—carbolic acid, salicylic acid, boric acid, resorcin, and iodoform; but the most efficient is the bichloride of mercury. It is odorless, inoffensive, and can be used in such dilute solutions as to be free from danger to the patient while destructive to lower forms of life. We never use solutions stronger than one part of the bichloride to a thousand parts of water. A solution one-half this strength is commonly used externally, and as a douche to wounds while operating, and weaker solutions, down to one part to five or ten thousand parts of water, are employed for dressings. We always wash out the stronger solutions where there is possibility of retention in a cavity with risk of absorption, by much weaker ones. The same precaution may be observed with iodoform when it is brought in contact in bulk with raw surfaces. One of our residents, who was handling the solutions every day, was slightly affected by mercurial poisoning during this year; but with ordinary care such results should not occur to either patient or surgeon, unless through marked susceptibility.

Having shown you some examples of the good effects of these dressings, I will proceed to explain them in detail. In the man with the depressed compound fracture of the skull just presented to you, as I have already described, we cleaned the entire scalp with soap and water, and shaved it around the wound. The bare surface of the scalp was then washed with the stronger solution of bichloride of mercury, and towels wet with this solution were placed around the field of operation. The knives and instruments, which are always boiled after being used, and, if possible, also before, were carefully cleaned and kept immersed in a tray of three-per-cent. carbolic acid solution. The bichloride solutions dull the knives, so we use carbolic acid to keep them in instead. A douche of (1-2000) bichloride solution was directed from time to time upon the wound by an assistant during the operation of trephining and while the several pieces of com-

minuted bone were removed, and while the fragment of bone was elevated which had been depressed. In order to insure freedom from the accumulation of any serous or bloody discharge, we placed several filaments of catgut ligature, which drains by capillarity but will not convey pus, in the bottom of the wound and led them out the angle. This catgut had been rendered aseptic by preparation in a carbolyzed solution. In from five to seven days it becomes completely absorbed. If it is desired to avoid such rapid absorption, a catgut thread treated with chromic acid may be used, which is harder than the other and requires double the time for absorption. They are made sufficiently pliable to be used for ligatures to bleeding vessels or for stump-drains. They are cut off short, and never give rise to irritation, and need not give the surgeon a thought after their introduction. The wound is brought together as accurately as possible by interrupted catgut sutures. The wound having been again irrigated, the line of suture was covered by a small strip of protective made of silk treated with varnish and coated with dextrine, and a damp pad of bichloride gauze, thickly sprinkled with iodoform upon its skin surface, then placed on the part, and the whole held in position by a wet bichloride gauze bandage.

After getting the wound thoroughly aseptic, it is not possible for any parasite to live beneath the dressings. The surroundings of the wound were also made clean, and no infection can occur from without.

The gauze which I show you is an admirable material for wound-dressings. It is exceedingly cheap, and has wide interspaces, so that discharges are not pent up around the wound. It is immersed in a solution of one to one-thousand of bichloride of mercury. Over the gauze is usually placed a large pad of dry absorbent cotton which has previously been treated with the 1-1000 solution; the dressings are kept in place by a bandage, which is also made of gauze treated in the same way. After this is in place we do not care how many germs or other micro-organisms are floating in the air, they cannot infect the wound. You see in this patient what I challenge surgery anywhere in the world to produce without aseptic or antiseptic dressings,—a compound comminuted fracture of the skull, with serious depression,

requiring trephining, completely cured by primary union in twenty-four hours, without fever or systemic disturbance whatever. This perfect result is due to antiseptic surgery and its proper application. In all my experience in this hospital and elsewhere, previously, I have never seen a case of this kind get well by primary union. The result was obtained solely by avoiding local irritation, while the ferment of suppuration has been kept away by securing an absolutely aseptic atmosphere.

You will hear some surgeons decry antiseptics in surgery. I have been a sceptic myself. You may hear them laugh about your precautions, and declare that they can get just as good results without them. But go and see their cases, look at their hospital wards, find out the length of time their cases remain under treatment, and whether erysipelas, cellulitis, and pyæmia ever occur in their practice. Observe, compare, and reflect. This is the only practical way to test the merits of treatment.

I have seen, but years ago, several cases of pyæmia at one time in the wards of this hospital; and one of the surgeons actually resigned because of the unfortunate results of his operations. In 1867 I was so much impressed with the necessity of greater cleanliness in the treatment of wounds that I devised this hospital ward-carriage to carry the dressings around the wards; it is also provided with a tank for supplying a douche of fresh water for the wounds; the basins which previously were placed under each bed were discarded, and sponges done away with and oakum substituted. When the basins and sponges were thus abolished, pyæmia greatly diminished in frequency. Forced ventilation was afterwards introduced, and by these combined means pyæmia was lessened, but not entirely eradicated, although for a period of more than five years, owing to scrupulous cleanliness and great care in every direction, not a single case of this dreaded disease occurred in this hospital.

Considered from the economical standpoint, it may strike you that this is not a cheap method of dressing wounds. As regards the first cost this may be true, but if you consider the saving in bandages alone—of one dressing in three or more weeks—over daily dressings, you will see that it is far less expensive than the former plan, to

leave out of consideration the time of the surgeon or the feelings of the patient. When the better results are taken into consideration, the greater safety and lessened mortality after operations, I think that you will agree with me that the expense is trifling, and that the antiseptic method is worth all the trouble that it costs to attain such results.

When you see, as you have to-day, that we can even open the skull, and resect a bone, and do this without any inflammatory reaction whatever, you obtain an idea of the possibilities of antiseptic surgery.

In private practice I treat my cases just as I do in the hospital. By means of a douche and a rubber tube you can keep up a stream of bichloride solution upon the field of operation. I carry with me a solution of corrosive sublimate, of the strength sufficient, if half a drachm of it be added to a quart of water, to give me a 1-1000 solution, which I can also use for dressings. The hands and finger-nails of surgeon and assistants are cleansed by scrubbing with soap and water, and then washed in this antiseptic solution. A rubber sheet (previously cleaned) should be placed under the part to be operated upon, in order to carry off the washings and discharges. When the lower extremities are to be operated upon, it is well to elevate the head of the bed by placing bricks under the posts, or by a special apparatus in the operating-table, which I exhibit here; a tray is attached to the foot of this table to catch the waste. In operating you will require something to absorb the discharges and cleanse the parts better than a towel. We use commercial sponges in the hospital, bought by the bale, and put through a bleaching and cleansing process. Thus prepared, they cost about half a cent apiece, and are used but once.

I will now show you two cases which require in each an amputation of the leg, and our method from first to last will be with a view to the strictest antiseptics. The first case is one of crush of the tarsus, in which an unsuccessful attempt has been made by my predecessor to save part of the foot by a Pirogoff amputation. Sloughing of the flaps has occurred, and an amputation of the limb higher up is demanded.

I shall now apply the principles already explained to you in performing this opera-

tion and in dressing the stump afterwards. I am partial to the Teale method of amputation of the leg, because it gives the best stump for an artificial limb, the cicatrix being at the side.

[The patient, a man 20 years of age, was then etherized. After the leg was washed with soap, shaved, and cleansed with bichloride solution, an Esmarch bandage (previously disinfected) was placed on the limb. The field of operation was next uncovered and surrounded with towels wet with the same solution. The knives were kept in the tray immersed in a three-per-cent. solution of carbolic acid. The circumference of the limb was taken at the place where it was intended to divide the bones; the long flap was then mapped out, rectangular in shape, one-half the circumference of the limb; the short flap was one-fourth the length of the long flap. The arteries were then tied with carbolized catgut, and the wound carefully cleansed of all spiculæ of bone or blood-clots; a few catgut threads were introduced as a drain, the flaps brought together with interrupted sutures of catgut, the protective placed over the sutures, and iodoform and bichloride gauze was applied. The whole stump was finally covered with dry absorbent cotton (previously treated with a solution of bichloride), kept in place with a wet gauze bandage similarly treated with the mercurial solution. The patient was then covered up warm and a bottle of hot water placed to the remaining foot.]

These dressings will remain undisturbed for three weeks or longer, unless some unexpected symptoms appear calling for earlier interference.

The second case I show you has just been admitted: he is 37 years of age, and has sustained a severe crush of the right leg, has a simple fracture of the right clavicle, and several ribs on the same side have been also fractured, and he has a crush of the left tarsus. His condition is serious, but with antiseptic precautions he ought to do well. The right limb requires amputation, for bones, muscles, nerves, and blood-vessels are concerned in the crush; the left foot will probably be saved; we shall at least make the attempt.

[Amputation of the upper third of the leg was performed, with the same precautions in regard to antiseptic dressings.]

ORIGINAL COMMUNICATIONS.

A CONSIDERATION OF THE BACTERIA OF SURGICAL DISEASES.

Read, by invitation, before the American Surgical Association

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VERY many observations have been made, extending over a long space of time and by many different observers, with the object of determining the etiology of the pus-forming processes in man. Before our knowledge of bacteriological methods was as precise as is now the case, such experiments as those of Councilman (*Virchow's Archiv*) and others were considered to be conclusive. These experiments showed, or seemed to show, that the introduction of simple irritant substances into the animal tissues was sufficient to set up a more or less marked degree of irritation, followed by suppuration and the production of a localized or sometimes of a general purulent process. The materials used were croton oil, turpentine, and the like, and the results observed after their introduction into animals were ascribed to a specific power which they possessed, which could, and generally did, produce pus-formation when such materials came in contact with animal tissues. These experiments seemed conclusive at the time they were published, but, with our more recent and intimate knowledge of the bacteria, their fallacies are easily to be perceived, and are seen to lie very largely in the imperfect methods taken to prevent the activity of bacteria, and the fact that these latter were not sought in the lesions produced by means which would lead to their detection if present. It is not surprising, therefore, to read the results of Klemperer in his admirable paper upon this subject (*Zeitschr. f. klin. Med.*, Bd. x. S. 198, and *Fort. d. Med.*, 1886, S. 34). Thinking, and with apparently good reason, that the results of other observers might be due, in part at least, to the imperfect sterilization of the skin of the animals experimented upon, this author made all his inoculations at a point which had been just previously seared with a red-hot iron, and again used the actual cautery at the point of inoculation after the operation was over. Of course, the syringe and material em-

ployed were thoroughly sterilized in the usual way. Experiments were made in large numbers, with acids, alkalies, cantharides, mustard oil, petroleum, and other irritating materials, and upon rabbits, guinea-pigs, and mice. Pus-formation never occurred: at the most, the only sign of any local or general disturbance being a moderate localized serous effusion. After the use of croton oil or mercurial injections, there occurred in some cases a firm necrotic (diphtheroid) infiltration,—Weigert's acute coagulation-necrosis. In only three of a large number of cases did suppuration occur, and in all of these cases micrococci were found in the pus, and the observations were therefore considered imperfect.

The observer concludes that the strongest chemical cannot produce suppuration without the presence of bacteria, and his results certainly seem to support this view. He found also a micrococcus, which under ordinary circumstances would produce no suppuration upon inoculation into animals, but which would set up a flow of pus if an irritation were produced such as would result after the introduction of acrid materials into the tissues.

Scheuerlin (*Von Langenbeck's Archiv*, Bd. xxxii. Heft 2) has also investigated this question, and has come to the same conclusion as Klemperer, that no suppuration will occur without the presence of micro-organisms. His method of experimentation was to place from one to four drops of the irritating substance in capillary tubes. These tubes were sealed, sterilized in the moist chamber, and introduced under the skin of rabbits with all possible antiseptic precautions. When the incision made for their introduction was thoroughly healed, taking six days as a rule, the tubes were broken under the skin, and the animals were killed in from four to eight days. Thirteen irritating substances were used, such as oil of turpentine, croton oil, oil of mustard, formic acid, etc., with distilled water as a control. In only one case was suppuration observed, and bacteria were found in this one.

The point being determined, therefore, that there is at least a very strong probability that no suppuration occurs without the presence and activity of bacteria, the study of the organisms concerned in these processes becomes at once of great interest.

Pasteur was one of the first to investi-

gate the subject, and his *vibrio septique* was one of the first of the organisms connected with a septic process with anything like certainty (*Bull. de l'Acad. de Med.*, 1877, p. 793). Since that time "the micrococcus of pus" and like expressions have been commonly employed as denoting a single organism which might be held responsible for all purulent processes, but with unreasonable inaccuracy, as later investigations have shown. In other words, there is not one but a number of pus-producing bacteria, which have been fairly well identified and described, and there is no reason to suppose that this number will not be added to as the investigations in this direction are proceeded with.

Rosenbach was the first observer to differentiate more than one variety of pus-forming micro-organism in man ("Microorganismen bei den Wundinfektionskrankheiten des Menschen," 1884), and was quickly followed by Krause, Passet, Hoffa (*Fort. d. Med.*, 1886, S. 75), and others, working in the same direction. Of course, the pioneer in this as in most other of the exact work in modern bacteriology was Koch, who gave indications of the direction and methods of research in his classic "Wundinfektionskrankheiten."

Of the bacteria concerned in pus-formation which have been found in the human body, and shown to possess pathogenic properties by inoculation experiments upon animals, there are at least twelve varieties which have been described with sufficient accuracy to make it possible for any observer to identify them. This identification, however, is not a simple matter of staining reaction and microscopic observation, as is the case with the bacillus of tuberculosis, but includes all of the means adopted for the classification of micro-organisms from a bacteriological point of view,—not, however, from a botanical stand-point.

The "points" of any bacterium, which form collectively the diagnostic evidence of its place in the classification, are: 1, its form, size, and arrangement; 2, its power of motion or not; 3, its behavior upon the three great classes of culture-media, nutrient gelatin, nutrient agar-agar, and solidified blood-serum, including the form and color of the colonies, and its appearance upon plate-cultures; 4, the temperature at which it flourishes best; 5,

the rapidity of the development of the colonies; 6, whether it produces spores or not; 7, whether or not air is necessary for its growth,—aërobic or anaërobic; 8, whether it produces gas or not; 9, its behavior in gelatin,—that is, whether it does or does not liquefy the nutrient gelatin; 10, its behavior towards staining-materials; 11, its pathogenic properties when inoculated into the lower animals.

All of these points must be investigated when it is desired to obtain complete evidence in regard to any special bacterium, and sometimes it is necessary to go through them all before it can be determined that it is one rather than another variety which may be under observation. From this statement it may be easily seen that it is occasionally a difficult matter to say with what organism a given observer has been working.

Rather than to run over all the work of each one separately, in order to give a clear idea of what has been done by the various observers in this line of investigation, I have thought it best to give a summary of the various bacteria thus far found in the "infectious wound-diseases" of man, according to the above method of classification. In this it seems to me as if a clearer idea of them could be conveyed than by any other hasty method.

1. In the first place comes the *Staphylococcus pyogenes aureus*, very abundant in pus, first described by Rosenbach ("Microorganismen bei den Wundinfektionskrankheiten des Menschen") and Passet ("Aetiologie der eiterigen Phlegmonen des Menschen"). They are cocci of variable size, occurring in masses, and often as diplococci, of an average diameter of 0.87 μ . On agar-agar at 37° C. they grow as a glistening raised colony, two to four millimetres broad, of a bright orange color. This color may often appear only after some time, and is then accompanied by a smell like that of sour paste. In gelatin there is generally a cloudy, grayish streak, which after about three days becomes of a yellowish, finally orange color, and liquefies the gelatin, into which the colony sinks. By a needle plunged into agar-agar there is presented a cloudy, beaded yellowish line, which becomes opaque after twenty-four hours, and later of an orange color. There is a layer three to four millimetres broad, extending over the surface of the agar-agar about the point of

entrance of the needle. On sterilized potato the colony has an orange-yellow centre, with a thin, whitish, almost transparent border, which gradually becomes thicker and yellow. There is also the strong pastes-smell. Its growth in blood-serum is exactly as upon agar-agar. It grows best at from 30° to 37° C., somewhat more slowly at summer temperature. It retains its vitality for a long time without oxygen, and produces no gas-formation. It liquefies nutrient gelatin and produces an orange-yellow pigment. Injected into the peritoneal cavity of rabbits and other animals, it will produce death after twenty-four hours, or else a tremendous suppuration which may last ten days or more.

This and the micrococcus of osteomyelitis (Becker, *Deutsch. Med. Woch.*, 1883, No. 46) are probably identical, because the behavior of the two under cultivation is the same; they are the same under the microscope, and the results after inoculation are the same.

2. The *Staphylococcus pyogenes citreus* found in pus and described by Passet (*l. c.*) has precisely the same properties as the preceding, except that its colonies are colored lemon-yellow instead of orange-yellow. It is not nearly so common as the *Staphylococcus aureus*.

3. The *Staphylococcus pyogenes albus* (Rosenbach, *l. c.*) occurs in pus less frequently than the *Staphylococcus pyogenes aureus*, and has the same morphological characteristics and similar pathogenic properties, but in a milder form, producing as a rule only localized abscesses when introduced under the skin of the lower animals.

4. The *Micrococcus pyogenes tenuis* (Rosenbach, *l. c.*) occurs in large subacute abscesses mostly, and is a form of micrococcus somewhat larger than the staphylococci, without regular arrangement. It grows on the surface of agar-agar, as a thin, almost transparent layer, and in the substance of the same material its growth is almost imperceptible. It grows very slowly, does not liquefy gelatin, and occasionally some of the larger ones are stained at the two poles by the aniline dyes employed, leaving the centre almost clear.

5. The *Staphylococcus cereus albus* (Passet, *l. c.*), found in pus, is a micrococcus of irregular size, occurring in masses or occasionally in chains; it grows on plate-cultures with nutrient gelatin as

white points one to two millimetres broad. In gelatin the surface of the colony is grayish white, with thick stearin-like drops along the needle-track. On potatoes there is a grayish-white colony of medium thickness, and on blood-serum a grayish-white dull streak. It does not liquefy gelatin.

6. The *Staphylococcus cereus flavus* (Passet, *l. c.*) is exactly like the preceding, except that it produces a lemon-yellow color somewhat darker than that of the *Staphylococcus pyogenes citreus* previously described. It is of very rare occurrence.

7. *Bacillus saprogenes* No. I. (Rosenbach, *l. c.*) is a rather large bacillus containing prominent spores, found by Rosenbach in the white plugs of the follicles of the tonsils. On agar-agar the colony appears as a yellowish-gray, opaque streak, about one millimetre thick, of cheesy, sticky consistency, with irregular edges after some time, and after four or five weeks a foul smell like that of sour cake. It is of very slow growth, produces large spores, and gives out an intensely foul odor when free access of air is allowed; when air is excluded the growth is retarded and the foul smell is delayed in making its appearance. Inoculation into the knee-joint of a rabbit gave a negative result.

8. The *Bacillus saprogenes* No. II. (Rosenbach, *l. c.*), found in the material from foul-smelling feet, is somewhat smaller than the preceding, and after twenty to twenty-four hours the colony on agar-agar appears as numerous fine points, which enlarge and coalesce, and form first an irregular clear, and then opaque, tough, slimy layer. The smell is that of foul feet. It grows very rapidly, is aerobic and also facultatively anaerobic, and gives its characteristic odor much more quickly by the free access of air than when this condition is wanting. It seems to have mild invasive and pyogenic properties.

9. *Bacillus saprogenes* No. III. (Rosenbach, *l. c.*), found in the pus of septic gangrene, on agar-agar after eight days at summer temperature, appears as a colony three millimetres broad, of an ash-gray color, not sticky, but of an almost fluid consistency, with a rounded contour. It grows with medium rapidity, reaching its maximum in eight days. There is very rapid fouling of albumen with free access of air; without this the process is slower.

All culture-media except milk produce this foul smell in the presence of this organism. After injection, either subcutaneously or into the joints of a rabbit, there occurred a yellowish-green infiltration with a surrounding redness, as well as the characteristic foul smell.

10. *Bacillus pyogenes foetidus* (Passet, *l. c.*) was found in abscesses about the anus, and consists of short staffs with rounded ends, often occurring two or more together, with an average length of 1.45μ , and a breadth of 0.58μ . It has slight motion. Plate-cultures in gelatin show after twenty-four hours white points, later becoming grayish-white. Magnified twenty diameters, the colonies appear thick and white in their centres and thick and gray at the edges. In gelatin in tubes, after twenty-four hours there is a soft, grayish-white, slimy layer on the surface, with rather thick, irregular edges. The needle-track is softened at first, and later presents large and small points all along it. Old cultures cloud the gelatin at the upper portions. On potato there is a glistening luxurious growth of a clear brown color; on blood-serum, a thick grayish-white streak. It grows rapidly, and does not liquefy nutrient gelatin. Subcutaneous injections and those into the abdominal cavity produce death in guinea-pigs and mice after twenty-four hours. The bacilli are found in the blood, but not at the point of inoculation nor in the organs.

11. *Streptococcus pyogenes* (Rosenbach, *l. c.*) was found in the pus of an erysipelas-like process. It is a micrococcus occurring in chains of from two to thirty, and of from 0.58 to 0.73μ in diameter. On plate-cultures in gelatin it produces fine round granular points. In a streak of the needle the culture is thickest at the middle, of a light brown color; its contour becomes thicker, swells up, and finally assumes a terraced form. Needle-punctures in gelatin show a delicate layer around the entrance of the needle, the needle-track itself presenting fine points of growth, at first very sparse, but later larger and much more numerous. In agar-agar at 35° to 37° C. there is a string-like, grayish-white line with points all along it, and no surface-layer. On cooked potato it does not grow well. On blood-serum it grows along the needle-track as a thin, string-like colony. It grows best at 35° to 37° C., much more slowly at summer temperature.

It grows slowly, the colony being but two to three millimetres broad after two or three weeks in surface-culture. After four months the culture is almost dead. It may be renewed in fresh nutrient material. It will decompose albumen in a vacuum, does not liquefy gelatin, and upon inoculation in animals produces a very severe spreading, erysipelas-like suppuration.

12. *Streptococcus erysipelatis* (Fehleisen, "Die Aetiologie des Erysipelas"), found in the lymph-channels during erysipelas, is a small micrococcus occurring in pairs or in chains, especially upon cultivation in bouillon, of about 0.3 to 0.4μ in diameter. On plate-cultures with gelatin it occurs in fine round granular colonies. Needle-cultures in gelatin after twenty-four hours show very fine white points or flecks the length of the needle-track, which later become a homogeneous white streak. There is either no, or very slight, growth upon the surface of the gelatin around the point of entrance of the needle. In agar-agar it grows very sparsely over the whole surface, in small, almost imperceptible colonies. On blood-serum at 37° C. the colony is almost exactly of the color and nearly indistinguishable from the serum itself. It develops best at from 20° to 30° C., grows slowly, and produces in rabbits a sharply-defined, spreading redness, without suppuration. It always occurs in the lymph-channels of the skin in erysipelas. It has been tried in a number of cases on man, and in these produced a typical erysipelas.

13. *Bacillus pyocyaneus* (Gerrard, "De la Pyocyanie et de son Microbe," 1882), found in green pus, is a short, fine rod, very likely to be mistaken for a micrococcus. In plate-cultures with nutrient gelatin, after two or three days the whole of the plate has a clear green tint, the colonies liquefying the gelatin in a funnel-shaped depression. Under a low power, the colonies appear round, somewhat yellowish, and glistening with clear granular edges.

Needle-cultures in gelatin after twenty-four hours liquefy the upper layer of the gelatin in a funnel-shaped depression, with a fluorescent coloring of the upper portion. The liquefaction later extends out to the side of the test-tube, and the whole of the gelatin takes on this clear fluorescent appearance. In agar-agar there is a moist greenish-white colony, whilst the

whole of the agar-agar is colored with a diffuse fluorescence. On potato dry colonies of a rust-brown color appear, which turn green with ammonia and red with acids. It grows rapidly; will not grow under mica (glimmerplatte), and liquefies nutrient gelatin. Guinea-pigs die after cultures of this organism have been injected into the abdominal cavity (Koch). Rabbits survive its injection into the blood-current.

14. *Pneumoniococcus-like bacillus* (*Pneumokokken ähnlicher Bacillus*, Passet), an organism found in pus, occurring as micrococci,—very rarely as short staffs,—in contradistinction to the *pneumoniococcus* of Friedländer, which very often has this form. On plate-cultures small grayish-white nodules appear, made up of the cocci. Needle-cultures in gelatin show after twenty-four hours a grayish-white hemispherical nodule on the surface, with no growth in the body of the nutrient soil. After three or four weeks there appears a brownish color in the gelatin, and a foul odor. On potato, at 37° C., there is a thick, soft, whitish, glistening layer, with no gas-production. Its growth is rapid, it produces no gas, and does not liquefy gelatin. Injected into serous cavities it produces a suppurative process, but has almost no effect after subcutaneous inoculation. It has no result at all in inhalation-experiments.

This summary includes all the organisms which have yet been described with a sufficient degree of accuracy to permit of their classification, and which have been found in the purulent or inflammatory processes in man. It is made up from the work of the various observers spoken of in the earlier part of the paper, and is based upon the excellent tables of Dr. Eisenberg. It does not, of course, include those organisms described by Koch in his "*Wundinfektionskrankheiten*," because they were connected solely with the lower animals by that observer. The summary gives us, however, a very comprehensive view of the work that has already been done, and of the number of organisms which have already been found in the various suppurative and inflammatory processes occurring in man. Unquestionably the subject is not yet exhausted, and additions to the list may very probably be made.

I have been interested in examining such cases as I could gain access to of graver forms of the suppurative process than simple acute abscesses and the like. These latter have been investigated in such numbers by the observers already alluded to—Rosenbach, Krause, Passet—that it hardly seemed worth while to go over exactly the same ground again in the same way. I have selected therefore, so far as was possible, severe cases of long standing and those where there had been no access to the air previous to the time of examination. Cases of this sort, fulfilling all the indications required, are not especially easy to find, and my thanks are due to Drs. J. C. Warren and E. H. Bradford for the material which they have placed at my disposal.

In chronological order the cases which I have examined are as follows:

I. Cultivations were made from an abscess of slow growth occurring at the seat of an ununited fracture of the left humerus of over a year's standing. No external injury to the parts was apparent, and there was no opening until the incision was made through which the pus was obtained for cultivation. Cultures were made from the pus which flowed out and from the wall of the abscess. Colonies of the *Staphylococcus aureus* and *albus* made their appearance upon the nutrient material in the course of a few days, were separated from each other, and carried through a number of generations. This case is interesting because the diagnosis of tuberculosis was made from the clinical symptoms, but a very careful examination of cover-glass preparations of the pus and of scrapings from the wall failed to show any indication of tuberculosis either in the way of giant-cells or of the bacilli of tuberculosis.

II. A large perinephritic abscess of several weeks' duration. Cultivations made from the pus and from the abscess-wall showed the presence of the *Staphylococcus aureus* and *albus*, which were separated and grown for some time. The case terminated fatally from pyæmia, and micrococci corresponding to those in the cultivations were found in microscopic preparations of the valves of the heart, in the kidney, spleen, and blood.

III. A skin-disease of the knee in a girl of 20, of some years' standing. An incision was made through the growth, a

flap turned back, and cultivations made from beneath this by scraping the needle over the surface. The colonies which made their appearance were the *Staphylococcus citreus* and *albus*, which also were separated and carried through a number of generations. Sections were made of a portion of the diseased skin of the knee which had been put into absolute alcohol at once after removal. Micrococci corresponding in size to those in the cultures were found in large numbers just below the layer of flat epithelium, with colonies running down at frequent intervals between the cells into the deeper layers of the skin. The microscopic appearances in gross showed the presence of giant-cells and granulation-tissue, with some proliferation of the epithelial cells into the deeper parts with a few clusters of epithelial cells. The most careful search through a number of sections, by Dr. W. F. Whitney and myself, failed to show the bacilli of tuberculosis.

IV. Perinephritic abscess of several weeks' duration, with a small opening which was only a few hours old. The abscess was opened by an incision through the skin made upon the opposite side of the body from this sinus, and cultivations were made upon agar-agar from the pus thus obtained. Pure cultures of the *Staphylococcus aureus* made their appearance in the course of a few days.

V. Erysipelas of the foot four days old surrounding a penetrating wound. An incision through the skin at a point just beyond the line of redness was made, and cultivations were sown with a platinum-needle from over the bottom of the wound. A pure culture of the *Erysipelas coccus* was obtained.

VI. Cultivations were obtained from the material in the vagina of a case of vaginal diphtheria after parturition at the Boston Lying-in Hospital, through the kindness of Dr. W. L. Richardson. There appeared, in the course of a few days, colonies of the *Staphylococcus albus*, and of the *Bacillus pyogenes foetidus*,—the latter of which I had hoped to be the first to describe, but which will be seen, by the preceding mention of it, to be credited to Passet.

VII. A case of vaginal diphtheria occurring under the same circumstances as the preceding. Cultivations made in the same manner were productive of colonies

of the *Staphylococcus albus* only. The case was almost convalescent at the time the examination was made.

VIII. A third case of vaginal diphtheria under like conditions as the two preceding, with the exception that there was a considerable amount of pus present in the vagina. This patient was also convalescent. The culture-tubes showed the presence of the *Staphylococcus aureus* and *albus*, and of the *Bacillus pyogenes foetidus*. There was also present a bacillus resembling the *Bacillus subtilis*, which was probably due to some contamination occurring during the manipulations.

IX. A case of psoas abscess in a child; a large amount of pus. Opened under carbolic spray and cultivations made from the pus and from the abscess-wall. The result showed a very free growth of the *Staphylococcus albus* only.

X. A case of hip-disease in a child, with a profuse suppuration about the hip-joint. Cultivations made from the pus as it flowed from the incision and from the joint itself showed the presence of the *Staphylococcus aureus* and *albus*. The latter—*Staphylococcus albus*—was much the most prominent, *Staphylococcus aureus* appearing in only one tube out of ten in which cultivations were made.

XI. A case of hip-disease in a child, with sinus which had been open for some time. In this case cultivations were made from a fresh opening made to secure drainage, and a free development of the *Staphylococcus aureus* and *albus*, and of a fine oval bacillus with no pathogenic properties, was obtained; the latter was probably the so-called *Bacterium termo*. The *Streptococcus pyogenes* was also found in this case, making four in all which were obtained.

XII. A case of glanders in the human subject. The body was covered with a large number of pustules, three or four of which were opened and cultivations upon agar-agar and in gelatin were made, the point at issue being to discover whether any of the ordinary forms of bacteria present in pus would be found in this case. As a result, colonies of the *Staphylococcus aureus* and *albus* were obtained, as well as two or three colonies of a fine bacillus answering the description of the organism found in this affection by Gaffky.

XIII. A case of lumbar abscess, with possible caries. Cultivations made from

the pus flowing out after incision of the abscess resulted in the development in a few days of a number of elevated, glistening, yellowish colonies, which, upon microscopic examination, were found to be made up of pure cultures of very fine, short, straight bacilli.

XIV. Psoas abscess in a child. Cultivations from the pus obtained in this case showed the presence of the *Staphylococcus cereus flavus* of Passet, so called, and of the *Staphylococcus aureus*.

XV. Psoas abscess in a child. Cultivations from the pus of this case gave, as a result, colonies of the *Staphylococcus albus*, and of a bacterium of which a more detailed description will be given farther on.

XVI. A case of abscess of the arm in a man. There was extensive purulent infiltration over the region of the shoulder and upper arm, extending into the left side, and penetrating into and between the various muscles of the affected parts. A number of cultivations were made with the pus as it flowed out from the freshly-opened wounds, and in the course of a few days very beautiful colonies of the *Streptococcus pyogenes* were obtained.

XVII. Abscess of the back following caries of the spine, which had existed for some time. The abscess was apparently the size of the fist, of rapid growth, and was situated in the right lumbar region very near the spine. Cultures were made from this case as before, from the pus flowing from a freshly-made incision. After a time, slowly-developing colonies of the *Micrococcus pyogenes tenuis* were seen to make their appearance, together with colonies of the *Staphylococcus pyogenes albus*.

XVIII. A case of bubon d'emblée. The swelling was of slow growth, and absolutely no history of venereal infection could be obtained. There were signs of pulmonary solidification, however, and the question as to whether the swelling in the groin might be of tuberculous origin or not became of interest. Upon incision into the tumor, a thick, dark pus was forced out, and cultivations were made, which, in the course of a week, produced colonies of the *Staphylococcus pyogenes albus* and of the *Micrococcus pyogenes tenuis*. Two of the glands which were enlarged to the size of marbles were placed in absolute alcohol, and upon several subsequent occasions sections were stained

and examined with the greatest care for the presence of bacillus of tuberculosis; the results of such examinations were in all cases negative.

This completes the list of the cases which I have examined. It is not an extensive one, and was purposely, so far as possible, limited to the more chronic processes, and to those where there was and had been no access to the air until the moment of time during which the cultivations were completed. It is, however, important to observe that in every case examined one or more forms of bacterial life were developed upon the nutrient material, and therefore that, so far as these observations go, they tend to refute the assertion that bacteria are not present in the more chronic forms of purulent disease. It is true that they may not be discovered by simple microscopic examination of the fresh pus, but this does not prove that they are not present. Their numbers may be so small that a few cover-glass preparations made up from only a portion of a drop of the pus might easily fail to reveal their presence. Cultivations, however, offer a means for their development, and the presence of but one or two bacteria may be demonstrated in this way in cases where they might be overlooked if any other method of investigation were employed.

In all the cases that I have reported the mode of procedure was as follows,—except, of course, in the diphtheritic vaginæ, where there was necessarily more or less free access to the air. After anæsthesia was complete, the skin over the point selected for the incision was thoroughly washed in a solution of corrosive sublimate, one to one thousand; the surgeon's hands were sterilized in the same solution. The incision was made with a knife freshly removed from the same solution, and as soon as the pus-containing cavity was opened, a platinum needle taken from the flame of an alcohol-lamp was plunged into it, and test-tubes containing nutrient gelatin and nutrient agar-agar were inoculated with the material obtained. The tubes were then removed to the laboratory, and in some cases plate-cultures were made at once, and in others not until twenty-four hours afterwards. A number of the tubes were also placed in the incubator at 37° C., and the conditions of development were observed under these circumstances. Every

one of the bacteria obtained was identified by means of its microscopic appearances, and its behavior under cultivation in various nutrient media on plate-cultures with nutrient gelatin, on agar-agar, etc., so that no name is given to any of the organisms found in the cases reported without a sufficient basis of careful observation. A large number of the bacteria were propagated through from fifteen to twenty generations, and were found to preserve their properties under cultivation during the whole of the time they were under observation, extending from six months to over a year. Owing to my absence abroad during last fall and an unfortunate mistake in regard to the time of my return, a number of the cultures were lost through drying. By this I do not mean that all of any one variety were lost, but that about one-half of the collection I had made from different cases were destroyed. This was to be regretted, because I had kept every bacterium from every case separate, and had carried each one through a long number of cultivations, extending over a great length of time, with a view to the determination of differences, if any existed, in the pathogenic powers of micro-organisms from different cases, but of the same apparent nature, as shown by their appearances under varying conditions of cultivation. This point the accident which I speak of prevented me from investigating, although the results obtained by other authors seem to indicate that there is no such difference as had seemed to me possible when I began this research; and the fact seems to be established that the differences in the pathological changes produced by what we must call the same bacteria are the result of influences other than those peculiar to the bacteria themselves, such as changes of nutrition and method of infection. It is to such differences as these that the varying clinical results produced by the *Staphylococcus pyogenes aureus*, as seen in osteomyelitis and acute abscesses, must be ascribed; for it seems to be fairly well established that the organisms producing the first and part of the latter processes are identical. The methods of Koch—including of course the employment of solid culture-media—have been used in all cases, as being conducive to greater precision and more definite results than any others that are known. This is especially the case

in such an investigation as the present one, for without these methods the differentiation of the various bacteria in the pus-producing processes would be practically impossible.

(To be continued.)

REPORT ON THE PROGRESS OF MEDICINE AND GENERAL PATHOLOGY.

BY J. C. WILSON, M.D.,

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HAMMER-MAN'S CRAMP.

G. V. POORE, in a recent clinical lecture at the University College Hospital (*Lancet*, August 21, 1886), calls attention to an unusual form of handicraft disease.

The patient, a previously-healthy nail-maker, 25 years old, somewhat addicted to alcohol, and working for long hours at "piece-work" in forging nails with a moderately light hammer, suddenly lost the power to direct the blow accurately, and in the course of a few months suffered so much from inability to wield his hammer and jerking of his right arm when attempting to do so that he was obliged to abandon all attempts at work. Six months later, after treatment, the circulatory, respiratory, digestive, and genito-urinary systems presented no abnormalities of any kind; the temperature was normal, but the pulse rather infrequent,—62 on one occasion, 52 on another. As regards the nervous system, examination of the patient shows his intelligence to be good; the special senses are normal; no headache; the third, fourth, fifth, and sixth cranial nerves apparently normal; the right naso-labial fossa rather less marked than the left; the mouth droops a little on the right side when at rest, and moves a little less vigorously than on the left side; the right upper limb is seldom or never quite still; when sitting up, with the arms hanging by the side, the right arm is the seat of constant slight movements,—elevation and adduction of the humerus and flexion of the elbow. Upon attempts at voluntary movement the spasmodic action of the muscles of the arm is increased, and extends to the deltoid, trapezius, and pectoral muscles. Attempts to use the hammer greatly intensify the spasms and render analysis of the muscle-faults impossible; ordinarily the arm is held

fixed to the side, the wrist is extended, the hand supinated and closed. There is nothing wrong with the lower limbs, except that plantar reflex is more marked on the right side than on the left. Sensation is everywhere normal; the patient is free from pain; attempts at movement are followed by a sense of fatigue and some aching; none of the nerve-trunks are in the least tender. It is evident that the spasm is not now special to the performance of the patient's professional act of hammering: it interferes with the accuracy of all voluntary movements of the right hand, and is noticeable to some extent when he is making no voluntary movement.

This case is of interest not only because of its rarity, but also on account of its difference from—rather than its resemblance to—other forms of handicraft disorders of the nervous system, and especially writer's cramp.*

The sudden onset, with the evidence of slight failure of the right side of the face and right half of the tongue and the exaggerated plantar reflex of the right foot, makes it highly probable that the lesion, whatever it may be, would be found in the motor area of the cerebral cortex on the left side, and that the motor affection is part of a slight hemiplegia. In this connection it is of interest to note that Frank Smith, of Sheffield, has placed upon record eight cases, analogous to the present one, under the name of "hephæstic hemiplegia, or hammer palsy" (*Ἡφαίστιος*, Vulcan). Of these eight cases, six were distinctly hemiplegic in character, while two were cases of brachial monoplegia.

The author expresses the belief that the physical basis of the trouble in the case under discussion will be found in thrombosis of the ascending frontal branch of the Sylvian artery. Treatment for several months had been without result, and the prognosis was not good.

These cases extend the limits of the so-called professional nervous diseases, and point to actual cerebral lesions which may arise from over-use of nervous centres. It is probable that constantly-repeated movements that are not really automatic, but require a constant effort of the attention, are more liable than others to produce central derangements.

CLINICAL OBSERVATIONS ON THE ACTION OF ANTIPYRIN AND THALLIN IN ACUTE RHEUMATISM AND PHTHISIS.

R. Johnson (*Lancet*, August 28, 1886) contributes the result of a limited number of observations upon the action of these drugs. The clinical observations were made at the suggestion of Ringer, who had pointed out the fact that the temperature in acute articular rheumatism is often highest immediately after the admission of the case to the hospital, and usually undergoes a considerable fall, sometimes as much as a degree or even two degrees F., in consequence of the complete rest in bed. To escape the possible error due to this action of rest, no medicine, or at most a placebo only, was administered for the first twelve or twenty-four hours. Antipyrin in twenty-grain doses or thallin in one- or two-grain doses was then given at short intervals. In those cases in which the influence of these drugs did not appear to be beneficial, they were superseded by sodium salicylate. Johnson's experience corresponds with that of Dujardin-Beaumez, that antipyrin in acute rheumatism reduces the fever but does not materially affect the joint-symptoms. This conclusion is at variance with that of many observers, including Neumann and Pribram, who have considered this drug equal to the salicylate in rheumatic fever. With regard to thallin, the general opinion of those who have employed it appears to be that it compares very unfavorably with sodium salicylate in the treatment of acute rheumatism. This view is confirmed by Johnson. He also regards thallin, notwithstanding slight advantages such as rapidity of action, as very inferior to antipyrin in its effect upon the temperature in this disease. He concludes that sodium salicylate "remains *par excellence* the cure for acute rheumatism, but that antipyrin may be useful in those rare cases in which the salicylate fails to exert its apparently specific action on the disease."

In phthisis the effects of antipyrin, in doses of fifteen grains given every four hours, or thrice daily, according to the requirements of the case, are very variable. In some it simply lowers the temperature without improving the general condition of the patient or retarding the course of the disease, whilst in others it is of great benefit,—lowering the temperature, lessening the night-sweats, and improving the

* [This relation has been recently considered in a paper by the editor of this journal, published in the *Annals of Hygiene* for October.—Ed.]

nutrition. On the other hand, the use of thallin in phthisis was followed by no appreciable benefit. Its almost constant effect on the temperature was to greatly increase the daily variations, the minimum temperature being often lowered by as much as 2° F., whilst the maximum remained the same. Each fall of temperature produced by thallin was accompanied by sweating, and the following rise was frequently attended by shivering and in many cases by distinct rigors.

The most important difference in these two drugs, as shown by almost all the cases in which they were used, is in the duration of their effects. The lowering of temperature brought about by antipyrin lasts usually (in these diseases) for many hours; the rise is gradual, and occupies several hours. Thallin, on the contrary, produces a very transitory effect, the rise often beginning within two hours after stopping the drug, being as a rule rapid and attended by shivering. The influence of antipyrin and thallin upon the pulse and respiration was slight.

Johnson calls attention to the following among the toxic effects of these drugs. Nausea and vomiting are not rarely produced by antipyrin in full doses, seldom by thallin. In a case of phthisis, prostration of a marked character followed the administration of antipyrin in three doses of ten, twenty, and twenty grains respectively, and again in a boy to whom three fifteen-grain doses were given at intervals of an hour. In no case did thallin occasion any prostration. Antipyrin is more apt to be followed by profuse sweating than thallin; thallin produces shivering and rigors with considerable frequency, while these effects have rarely followed the administration of antipyrin. The exanthematous eruption first described by Ernest, of Zurich, as occasioned by antipyrin is by no means rare; it consists of small rosy-red spots over the chest and abdomen, and to a less extent on the limbs. The rash may be confined to the face and neck, and then closely resembles that of scarlet fever; it is transient, usually fading gradually in the course of one or more hours. Thallin in rare instances causes a similar rash. During the administration of thallin the urine assumes a dark-green color and emits a strong odor of the drug; this effect rapidly disappears after the drug is stopped. This condition of the urine is of constant occur-

rence, and closely resembles that so often seen in the surgical wards from the absorption of carbolic acid.

TRANSFUSION AND INFUSION.

Dr. A. Landerer (*Virchow's Archiv*, August 3, 1886) discusses at length the present state of knowledge in the matter of the treatment of blood-losses jeopardizing life, profound anæmia from other causes, and certain forms of poisoning. His conclusions are based upon the now well-recognized dangers attending the transfusion either of blood or of serum, the inadequacy of salt-solutions, and the efficiency of a mixed solution of salt and sugar. His experimental investigations in regard to the latter solution were conducted in the Physiological Laboratory in Leipsic, under the supervision of Professor Ludwig and Dr. Gaule.

The dangers attending the transfusion of blood are illustrated by two cases observed by the author in the surgical clinic. The first of these was that of an eight-year-old boy reduced to the last degree of anæmia in consequence of paralysis of the muscles of deglutition following diphtheria. The details of the operation were carried out with the utmost care in accordance with the accepted rules of procedure. After thirty cubic centimetres of thoroughly defibrinated and filtered blood had been thrown into the left median vein, gasping respiration and facial spasm were followed by sudden death. At the post-mortem examination, the pulmonary artery was filled with fresh clots.

The second case was that of a young woman suffering with acute anæmia. Here peritoneal transfusion (Ponfick) was performed with full antiseptic precautions, three hundred cubic centimetres of blood being introduced. The patient died of foudroyant peritonitis in forty-eight hours.

The investigations of Alexander Schmidt, Cramer, Edelberg, and others have shown that these accidents are due to the development in the drawn blood of fibrin-ferment, which despite the most careful defibrination is occasionally the cause of fatal change in the blood of the organism into which it is introduced. That this change only occasionally occurs does not militate against the objections to transfusion, because in any given instance it can neither be foreseen nor prevented.

Since Goltz has shown that the imme-

diate cause of death in blood-loss is not, as formerly thought, dependent upon loss of hæmoglobin and its result, the deprivation of oxygen, but rather that it is dependent upon certain mechanical conditions, especially a derangement of the relations between the capacity of the blood-vessels and their contents and incomplete filling of the heart with blood, the introduction of some indifferent fluid not injurious to the blood itself, in order to fill the vascular system, became the controlling indication.

For this purpose the 0.6 per cent. alkaline solution of common salt (Kronecker and Sander*) has been regarded as possessing the necessary qualities. In fact, as von Ott demonstrated, animals thus treated after severe bleedings make a better convalescence and repair the loss of red corpuscles and other blood-constituents more rapidly than those in which transfusion with whole or defibrinated blood has been performed.

Furthermore, the transfusion of blood was, even under the most favorable circumstances, followed in almost all cases by fever of longer or shorter duration, usually ushered in by rigors, great mental and physical depression, præcordial distress, frequently by intestinal disturbance, and occasionally by exanthems,—symptoms of the “fibrin-ferment intoxication” of Edelberg.

Efforts to prevent the excessive formation of fibrin-ferments by changes in the methods of defibrinating the blood, as by agitating it with broken charcoal, glass beads, etc., have been without result, nor have attempts to prevent clotting by the admixture of the blood with other fluids led to any practical result.

The author regards with disfavor attempts to prevent coagulation by any admixture of peptone.

A very simple method, yet one not wholly free from objection, consists in a combination of blood-transfusion with the infusion of the solution of salt. This expedient meets one of the objections to the transfusion of blood: namely, that the volume of fluid introduced is frequently too small to correct the mechanical disturbance between the capacity of the vessels and their contents. The admixture of two to three hundred cubic cen-

timetres of blood with seven to eight hundred cubic centimetres of 0.6 per cent. salt-solution affords sufficient fluid on the one hand and reduces the danger of poisoning by fibrin-ferments. This method of “mixed transfusion” will probably be preferred as less dangerous by those who cannot abandon the view that transfusion is the rational procedure.

The use of various forms of serum is not without risk, seeing that they all, with the single exception of horse-serum, contain more or less ferment. Serum is not practical for the further reason that its preparation is too difficult and tedious.

Other fluids containing nutritive substances, as for example milk, have been found to be attended by direct dangers.

Much can also be said against the infusion of salt-solution. In cases of poisoning in which transfusion is required, salt-solutions would be clearly inadequate. In fact, the use to replace lost blood of a fluid which is scarcely more than water, without value in nutrition or force, must be looked upon as at best an unsatisfactory and imperfect procedure. This objection—that such a solution acts merely mechanically—is a serious one. In the words of Landerer, “It is as if one were to offer a hungry man a stone instead of bread.” Furthermore, it has not been followed in a large number of cases, especially where there has been large blood-loss, with the hoped-for result. Nevertheless, we have in salt-solution probably hit upon a basis by means of which, with proper additions and modifications, a transfusion-fluid meeting the various indications for transfusion under all circumstances may be made up.

The requirements of such a fluid are as follows:

1. It must be absolutely without danger in itself.
2. It must be readily obtainable under all circumstances, so that in case of necessity it may be procured at once.
3. It must contain the greatest available amount of assimilable substances capable of sustaining animal heat and the powers of the organism.
4. It should be of the simplest possible chemical constitution.

The author believes that in a combination of the alkaline salt-solution (0.6 per cent.) with a solution of sugar (one to three per cent.) we have a fluid which fulfils all these requirements.

* Berlin. Klin. Wochenschr., 1879, No. 52.

The conclusions of the author are as follows:

1. Blood-transfusion is dangerous and useless.

2. The infusion of a solution of common salt does not in really severe blood-loss (more than four and a half per cent.) by any means insure a favorable result.

3. A combined solution of salt and sugar is preferable, because (a) it favors and accelerates the natural tendency of the organism to readjustment by favoring the transudation of fluid from the tissues to the interior of the blood-vessels; (b) it affords the organism a light and quickly-assimilable nutrient material; (c) it more closely resembles the blood in density than the solution of common salt; (d) it raises the blood-pressure.

4. The combined solution of salt and sugar may be of use in poisoning by nitrobenzol, chloral hydrate, chloroform, carbon dioxide, etc.

5. In cases of loss of the watery portions of the blood alone, as in cholera, the salt-solution may be more available than the combined salt and sugar solution.

THE HEREDITARY TRANSMISSION OF PARASITIC ORGANISMS.

Professor Max Wolff (*Virchow's Archiv*, July 3, 1886) communicates the result of a series of researches in this connection which he has been conducting since 1884 in the Pathological Institute at Berlin. His conclusions are at variance with those of Koubassoff, who reported that, after injecting pus containing tubercle-bacilli, milzbrand bacilli, the bacilli of malignant œdema, etc., beneath the skin of gravid guinea-pigs and rabbits, he discovered these microbes in the internal organs of the foetus, and frequently in great numbers. According to this statement, the transmission of the microbes to the foetus and its infection from the mother would be of very common occurrence.

To this view Wolff by no means accedes. On the contrary, his researches lead him to regard the conditions as by no means favorable to this mode of infection.

1. The first series of experiments were made with milzbrand (anthrax) bacilli. Six animals were inoculated, and died of exquisitely developed milzbrand, with abundant bacilli in all the organs. With the seventeen foetuses examined the case was wholly different. Microscopical ex-

amination of sections from the thoracic and abdominal organs, both with double staining by the method of Gram and without it, and one hundred cultures of material from the liver, spleen, kidneys, and lungs, gave absolutely negative results.

As a further means of control, thirteen young animals were subcutaneously inoculated with fragments of the organs of these foetuses. Of these two only died of milzbrand; the rest were kept many weeks under observation and remained free from the disease. The author thinks that it is almost certain that the two animals that contracted it were accidentally infected in the laboratory. Both the inoculation and culture experiments were carried out with the most rigorous care. The placental and other intra-uterine structures, as well as the foetus, remained in all cases free from the lesions of milzbrand.

Wolff concludes that the question of the transmission of the bacilli of milzbrand from the mother to the foetus is by no means settled in "a positive and constant sense," as Koubassoff, in the communication laid before the Paris Academy by Pasteur, assumed.

2. A second series of investigations were conducted with vaccine. Women were successfully vaccinated towards the end of pregnancy. Two or three days after birth the children of these women were vaccinated, with a perfect result in every case. Uniformly positive results—the details of which are to be published hereafter—proved that the vaccine-contagion had not reached the foetal circulation; that infection of the foetus through the mother does not take place in vaccinia any more than it does in milzbrand. It is certainly true that the transmission of variola from the mother to the foetus does occasionally take place; but well-authenticated instances of the children of mothers suffering from smallpox coming into the world with the eruption are extremely rare.

3. The third series of experiments were conducted with a view of solving the question of the parasitic transmission of tuberculosis. This investigation was carried out in two directions. First, a number of animals already gravid were inoculated with material containing tubercle-bacilli. Secondly, another group was inoculated prior to conception, in order to test the possibility of a bacillary infection of the ovum. The author's researches are not yet con-

cluded; but so far as they go the results are not favorable to the view of the direct parasitic heredity of tuberculosis. To the naked eye no one of forty-two fetuses exhibited signs of tuberculosis, even where the mother died of exquisite diffuse tuberculosis.

In the human being, tuberculosis of the fetus and new-born child must be of the most extreme infrequency. Wolff does not deny the occurrence of (parasitic) hereditary tuberculosis, but regards it as extremely infrequent, and looks upon many of the cases of tuberculosis in the new-born as due to direct post-partum infection rather than to intra-uterine transmission. This appears more probable when we reflect upon the great number of risks of infection from their tuberculous parents to which new-born children are exposed. Among them are all manner of modes by which the bacilli-containing sputa may be brought into contact with lesions of the mucous membranes and cutaneous surfaces of the infant.

THE MEDICAL PROFESSION AND PROPRIETARY QUACKERY.

BY SAMUEL S. WALLIAN, A.M., M.D.,
New York.

INCOMPLETE statistics show that the money expended by the people of the United States for secret and proprietary medical preparations aggregates annually more than eighty millions of dollars. When the reasonable statement is added that certainly more than one-half of these exploited remedies are positively detrimental rather than beneficial to their consumers, the subject becomes fairly tragic. Compared with this insidiously-growing evil, war and intemperance are made to seem less formidable calamities.

Limned in detail, the picture would be ludicrous if it were not in its results so fatal as to be actually appalling. For this unsatisfactory state of things there is no specific or easily-suggestible remedy. It may be assumed that ignorance is at the bottom of it, but it is inborn and transmitted ignorance. Generations back of us have contributed towards endowing us with a mania for dosing. The new-born babe takes to its castor oil and saffron as though it had been accustomed to a diet

of oleaginous laxatives and other nauseants in some pre-natal state.

It is easy to say, "Educate the community;" but to eradicate a habit at once so pernicious, so well-nigh universal, and so chronic, would involve a disturbance of the very foundations of society. A discouraging feature is that in this connection the acknowledged exponents of the profession are not wholly without blame. See the long list of eminent names appended to unscrupulous panegyrics on one or another form of patent nostrum. See the page on page of popular journals illuminated with flaring cuts and endorsed by the titled names, in display-type, of prominent professors and college presidents, far and near,—all to the end of advertising numberless (sometimes, it may, be meritorious) proprietary preparations. Instance the baby foods. How glibly their proprietors proceed to prove, by authentic chemical analyses, the undoubted superiority of each of these preparations,—and some of them are really triumphs of science,—while their universal and sweeping sale everywhere, proves the sad fact that so many mothers nowadays suppress the maternal instinct, and forego nearly all the mother's dearest recompense, by making half-orphans of their cheated and helpless progeny!

Where shall reform begin? If any degree of success be hoped for, the teachers themselves must first be taught,—physicians must become better informed. In this direction every reputable member of the profession has his personal work, and should not shirk the responsibility. For instance, a prominent medical writer makes the inexcusable blunder of asserting that "the peroxide of hydrogen is simply water impregnated with an excess of oxygen;" whereas every student of chemistry in his first year has learned that the peroxide of hydrogen—more properly *hydrogen dioxide*—is not water at all, contains no free oxygen, but is a definite and distinct compound of oxygen and hydrogen, represented by the formula H_2O_2 . Another, referring to the use of the same article as a topical application, says, "It may be used of *full strength*," whereas peroxide of hydrogen of "full strength," or pure, would act upon tissues to which it might under such teaching be inadvertently applied, much as would the actual cautery.

If prominent professors and specialists trip thus in dealing with its outlines, how shall we wonder at the degree of ignorance exhibited by the average practitioner in relation to simple chemical manipulations? Many an otherwise well-schooled and well-read professional man is entirely at sea when it comes to technical symbols, and stands stupidly aghast before the simplest chemical equation.

Thus, for instance, he has an idea that to make oxygen gas is a difficult and dangerous feat; that some chemical is used which presumably liquefies at high heat; and that explosions are a matter of course, as well as frequent. His conception of the gas itself is that it is a stimulant to the functions, especially that of destructive metamorphosis; and that in some forms of asphyxia, as by carbon dioxide or by drowning, it would often be a desideratum. He scarcely distinguishes between the names oxygen and "compound oxygen," and perhaps vaguely imagines that the latter is a little more complex and expensive, and hence ought to be more efficient than the former. Beyond this rudimentary and indefinite knowledge he has had neither occasion nor inclination to inquire.

At the same time he is acutely sensible that numbers of his clients, induced by extravagant and ingenious advertising claims,—the manufacture of which is now a studied profession,—are wasting much money in openly or secretly procuring some of the many proprietary make-shifts variously paraded under the names of "Oxygen Treatment," "Compound Oxygen," etc. And, however well satisfied he may be that the preposterous claims made for these alluring but usually inert nostrums are unconscionable exaggerations,—not to use a harsher term,—he is at the same time painfully aware that a number of his more credulous patrons will forget his last season's bill in order to promptly remit, in advance, the exorbitant price charged for this most successful class of proprietary shams, put forth by conscienceless adventurers who have developed lying into a commercial science and made it almost respectable!

That the element oxygen has latterly established a claim to be recognized as a valuable therapeutic aid is quite generally conceded. That it has been retarded in its recognition by the charlatans who have counterfeited it is also equally clear. To

obtain the remedy in a pure and reliable form, convenient for general use in the office and easy of transportation to the bedside, has been at once a desideratum and a difficulty. Notwithstanding these obstacles, within a few years its use by American physicians has increased a hundred-fold; and improved apparatus and better methods are gradually overcoming the numerous drawbacks to its still more general use. In New York City alone there are now several quite well patronized dépôts for furnishing the compressed gas to practitioners who prefer to procure their supply in this way, and thus save the time, labor, and *litter* involved in its manufacture.

With these increasing facilities the profession ought to be able to drive shoddy "oxygen" out of the market. Yet it is but one of a class, and that a very large class.

There are anti-tobacco societies, anti-liquor parties, even anti-adulteration journals; but there are no anti-nostrum associations. That there is a need for such has already been sufficiently set forth.

In this connection the profession as a whole must plead guilty of a dereliction of duty. There is no doubt but that by proper and persistent effort practitioners have it in their power to initiate a movement which would in time eventuate in wholesome changes in public opinion touching this vitally important subject.

Two things militate against any sweeping or sudden revolution in this direction: ignorance and tradition. But even these are not utterly incurable; and here permit a practical suggestion.

In these days of the rapid advance of ideas, every medical practitioner owes it to his patrons, his profession, and his conscience to antagonize three prevailing and mischievous delusions:

1. That it is economy to doctor one's self.
2. That any remedy can be good for every ailment.
3. That irregular and unlettered "doctors" who catch the public eye through advertising display owe their "unparalleled success" to the possession of chemical or other valuable secrets which are unknown to the regular profession, and unknown to chemists.

At the same time, and as complementary of the foregoing, he ought also to

inculcate a few wholesome and general precepts:

1. That to regain impaired health does not necessarily imply the use of drugs.

2. That in consulting a physician, a maximum of advice and a minimum of medicine is a consummation devoutly to be sought.

3. That the more intelligent people become, the less they assume the responsibility of deciding questions of which only a skilful medical man is competent to judge, the less they listen to the catch-penny claims of advertising charlatans, and the less money they pay out for preparations which are not ordered or vouched for by some one in whose sagacity they confide.

4. That those who decline the use of all remedies, except when prescribed by a competent physician, experience uniformly better health, expend less money at the druggist's, and suffer infinitely less from imaginary evils, than any other class.

When practitioners everywhere conclude to spend more time and effort in disseminating these and similarly axiomatic truths than in traducing competitors or wrangling over medical politics, there will be less money poured into the coffers of the wily patent-medicine sharks, less quackery both in and out of the profession, and the medical millennium will draw nigh.

491 WEST TWENTY-SECOND STREET.

NOTES OF HOSPITAL PRACTICE.

MEDICO-CHIRURGICAL COLLEGE, DEPARTMENT OF ORAL SUR- GERY.

CLINIC OF PROFESSOR GARRETSON.

EXSECTION OF SECOND BRANCH OF FIFTH NERVE AT FORAMEN ROTUNDUM.

THE patient was a lady from Oregon, suffering with neuralgia of several years' standing affecting the superior maxillary division of trifacial nerve. Remedies of every nature having been tried at the hands of some twenty different physicians, and several minor operations done at different Western hospitals, and the suffering having increased to such extent as to render it no longer endurable, the operation of excision of the nerve-trunk was proposed and gladly accepted.

On September 11 the patient was etherized and exposure was made of the anterior

face of the antrum, the infraorbital nerve being dissected from the flap and caught by a bull-dog forceps. The immediately-succeeding step removed the boundary of the sinus, the surgical engine being used, while the burr, directed by the line of the nerve, quickly cut away the floor of the canal, and so permitted the branch to fall into the antrum.

Following this was the task of reaching the nerve, as it rests upon the floor of the orbit. Great care being exercised to clear the cavity of the sinus from clots of blood with which it too quickly filled, and a rasp-atory being used to scrape a line upon the antral roof, a dull burr was put in the place of the sharp one heretofore used, and the marked and rasped space was cut away to an extent which exposed nerve and eye-appendages. Here delay was made to show to the class at large the exposed nerve as it lay, white and shining, in the opened antrum, and could be moved about in all directions.

The final step of the operation—namely, entering the speno-maxillary fissure—required the greatest attention and caution. The burr used was conical as to shape, fine and short as to blades, and was revolved to the extent of the power of the engine, some fifteen thousand revolutions to the minute. It being shown to the audience that absolute steadiness had been secured by means of the velocity, the antrum was again cleared of blood-clots and its posterior face made to define itself clearly in the sunlight. All being prepared in accordance with the mind and requirements of the operator, the burr was reintroduced into the cavity, and in a single moment the fissure was opened.

To insure the proper completion of so delicate and complicated a performance, the nerve was isolated and the round foramen defined by means of a delicate fenestrated probe, which, guided by the nerve it encircled, was pushed inward and upward until it struck the base of the skull. The nerve-trunk was then cut by means of a tenotome or fine curved bistoury.

This operation, perhaps one of the most delicate and least frequently attempted performances in surgery, has been thrice shown within a short time to his students by Professor Garretson.

On the third day after the operation a visit to the hospital showed the patient sitting up in a steamer-chair, chatting

comfortably with her nurse. The union of the external wound was already and perfectly accomplished by first intention. At the date of this writing, still three days later, a sponge, with which the eye was being insured against any possibility of prolapse, had not been removed.

SECTION OF SUPERIOR MAXILLA IN TREATMENT OF NEURALGIA.

The subject in this case was from Bermuda,—a lady, a private patient of Professor Garretson's, about 60 years of age. The neuralgia was persistent and severe, and of some twelve years' standing. Diagnosis as to position was arrived at through the process of exclusion. The seat of lesion was determined to be on the line of relation of the posterior and anterior dental nerves, where these lie at the base of the antrum.

The operation was performed by means of a circular saw, the lip and cheek being held out of the way and protected by means of retractors; the object being to remove all that portion of bone bounded in front by the symphysis, at the back by the tuberosity, above by the floor of the sinus, and below by the free ridge of the gum. This locality was mapped out by means of incisions reaching through the overlying soft parts to the bone. Following the incisions, and occupying the lines of the cuts, came the saw. It required scarcely an appreciable period of time for the operator to show the section in his hand to the class. The relief from pain was decided and immediate.

Nine minor cases were then shown and treated.

TRANSLATIONS.

HYDROFLUORIC ACID IN THERAPEUTICS.—In a recent thesis upon the therapeutic applications of hydrofluoric acid, Dr. Chevy submits the following conclusions:

1. The vapor of hydrofluoric acid mixed with atmospheric air does not produce in the respiration the accidents which hitherto have been attributed to it. It can be breathed without inconvenience in a mixture containing one to fifteen hundred parts.

2. Hydrofluoric acid is a powerful antiseptic and antiferment. A solution of one

to three thousand is able to arrest fermentation in milk, urine, or soup, and to permit the preservation of meat.

3. The therapeutic employment of hydrofluoric acid against pulmonary tuberculosis, diphtheria, and in the dressing of unhealthy wounds appears to have furnished results worthy of being followed up.

4. If the diseased person be asthmatic, hæmophilic, or emphysematous, this agent should be used with caution.

The method of disengaging the gas employed by the writer is to obtain it directly from fluor-spar contained in a leaden vessel, and the addition of sulphuric acid in excess. The diluted gas is to be inhaled cautiously; and where this had been done in several cases, the patients not only bore it well, but asked that it might be repeated.

URINARY CALCULUS IN THE FEMALE BLADDER.—Dr. Curtil gives the following as his conclusions (Paris Thesis, 1886) from a study of the subject of treatment of vesical calculus in women: (1) All things else being equal, we should always prefer a bloodless operation to a bloody one. (2) For a stone not larger than from two to three and a half centimetres we should resort to dilatation as the method of election. (3) In the case of a calculus which, although voluminous, yet is friable, in a patient whose bladder is tolerant and otherwise normal, we should select lithotripsy, modified, when required, according to the necessities of the case. (4) In all other cases we should employ the hypogastric section.—*Revue de Thérapeutique Méd.-Chirurgique*, No. 16.

A NEW MICROTOME.—MM. Henneguy and Vignal showed at a recent meeting of the Paris Biological Society a modification of the Cambridge rocking microtome. In the original model it is necessary to count the notches in order to ascertain the thickness of the sections; also the direction of the embryo cannot be changed after it is fixed on the instrument. In the instrument modified by MM. Henneguy and Vignal, by the aid of an indicator moving along a graduated circle, controlled by the regulating piece, the thickness of the sections is at once ascertained. By means of a holder capable of being moved on three different axes, the pieces studied can be moved in any direction.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, OCTOBER 16, 1886.

EDITORIAL.

ON OBESITY.

"Oh that this too too solid flesh would melt!"

LIKE other maxims, "Laugh and grow fat" is part sound, part false. Little as we may suspect it, the advice is far from being of universal application. Its wisdom and beneficence depend wholly upon this point of view. It is all very well to laugh, but the growing fat is quite another thing. It would be well for some of us, if laughter bred fat, to take our pleasure sadly. For if the fat man be a merry man, he pays for his mirth by much discomfort and inconvenience. More than this, he is in the way of dangers that miss his lean and envious neighbors. These dangers are manifold and dire; but space forbids us to describe them, or even to enumerate them. And we are the more constrained to reticence on this subject lest we might in too free discourse add aught to the weight which our fat friends are compelled to bear.

"Where ignorance is bliss, 'tis folly to be wise." Here again a maxim that is less than half true. For we feel constrained to say in all seriousness that in many a case the greatest danger that can befall a fat man or woman is to catch the present fashionable craze and undertake to become lean. Some men—and women too, if for the truth's sake we might make so bold as to say it—are born to be fat. It runs in the blood and is a family failing. Others, having acquired fat by their personal efforts, wear it until it becomes second nature and their organs are accommodated to it. In both these sorts of persons obesity has grown to be a normal condi-

tion, inconvenient and uncomfortable, it is true, and, with advancing years, in itself attended by many dangers.

To reduce it in such cases as these to any considerable extent is always difficult, and often attended by risks of the most serious kind: all of which was already known to the ancients, and is spoken of by Hippocrates and Celsus. Bantingism is out of fashion, by reason of the evils which followed its improper use; the method of Ebstein is also out of favor,—tried in the balance and found wanting,—because of the persistent gastric derangements which it often causes. Schwenninger's plan was successful with that man of iron, Prince Bismarck, but its oft-repeated little meals—day-long nibblings—play hob with ordinary stomachs.

Finally, the method of Oertel has come to the front, and is just now so much in vogue in Germany that a single word has been invented to designate this particular *Entfettungs-Kur*: namely, the word *örteln*. The peculiarities of this method, which is well known through the publications of its originator, consist chiefly in a restricted diet without fat, a greatly restricted amount of fluid, and increased muscular activity, especially of such kind as increases the action of the heart. Rosenfeld, of Stuttgart, has quite recently called attention to the dangers which attend this "cure." These are of a very serious kind, and have in some instances narrated by this observer proved fatal. They relate to the kidneys, the heart, and the nervous system. Rosenfeld found albuminuria in eight of twenty-four cases, in all of which albumen had been definitely absent before the cure. The symptoms and the microscopical and chemical characters of the urine indicated acute nephritis passing into chronic parenchymatous nephritis. Two of these cases terminated fatally. The danger as regards the heart is that, in consequence of the stress brought to bear upon it, muscular insufficiency and dilatation may be developed, with shortness of

breath, palpitation, and irregular, feeble pulse. Among the symptoms due to derangement of the nervous system are loss of appetite, *anorexia nervosa*, vomiting, gastralgia, enfeebled digestion, and stubborn sleeplessness.

Surely it is better to be fat and feel comparatively well than to run so many risks and suffer so many ills in trying to become something else than what Nature evidently intends us to be. The greatest danger to many a fat person is that he should attempt to become lean.

MAMMARY ABSCESS.

SUPPURATIVE inflammation of the mammary glands occasionally occurs in new-born children and in girls at the age of puberty. Its frequency is, however, so much greater during the periods of functional activity that it may be practically regarded as a disease of lactation.

E. Bumm* refers cases of this affection as it occurs in lying-in and nursing women, and occasionally also during pregnancy, to two groups, differing in causation as well as in their course and termination: 1, simple parenchymatous (non-infectious), and, 2, phlegmonous (infectious) mastitis.

1. Simple or non-infectious mastitis is due to the accumulation and retention of the newly-formed secretion, and differs in degree only from that physiological fullness and tension which are felt in the breasts upon the second or third day after parturition. The mammae, being but poorly supplied with intrinsic contractile elements and wholly lacking the influence of extrinsic muscles, are less favorably arranged than the other glands of the body for the discharge of their secretions. They are dependent upon the aid of the suckling, or, in its absence, of the breast-pump. If this aid be deficient, the retention which follows may cause local and general disturbances that are, especially in women of

irritable, nervous organization, of some moment. The temperature may reach 102.8° to 104° F.; the breast is full, hard, and painful; red streaks extending in the direction of the axilla may indicate inflammation of the lymphatics. But the tendency after massage and suction is to dispersion and resolution, and only exceptionally is there necessity for evacuation by an incision through the skin. Even then the discharge is not pus, but milk in process of inspissation and disintegration of the globules, and, with rare exceptions, it is free from bacteria. Here we have the familiar "weed" of the old nurses.

2. But in phlegmonous or infective mastitis we have a very different and much more troublesome affection to deal with. The line of separation between the two conditions is sharply defined. In fact, they have nothing in common except the same anatomical seat, nor can there be any question as to the development of the graver out of the milder malady.

Phlegmonous mastitis occurs more than twice as frequently in primiparæ as in multiparæ; much more frequently in women who are nursing than in those who are not. It begins in by far the greater number of cases in the course of the first month after accouchement; lesions of the nipple usually precede it; and, finally, a part only of the breast is commonly implicated at first, and that part is usually the undermost or the under and outer part. Errors in diet, colds, worry, mechanical irritation, are, singly or together, quite incapable of causing this form of inflammation. It is due to the presence of specific pyogenic microbes. These cocci are found sometimes arranged in clusters (staphylococci), sometimes in chains (streptococci), and are to be distinguished from other microbes of similar form by the peculiar appearance of their pure cultures and by their active growth, while the energy with which they take up and retain aniline dyes

* Volkmann's Klinische Vorträge, No. 282.

renders their study in the tissues comparatively easy. The distribution of these organisms is so wide and abundant that their contact with the nipples is almost unavoidable. Any want of the most thorough cleanliness, any abrasion, maceration, or loss of epithelium, opens the way for the infection of the deeper structures of the breasts. And it is here that the long-recognized relation between lesions of the nipple and phlegmon of the breast finds its explanation. The disproportionate frequency of the latter affection in primiparæ is also made clear, when we consider their greater obvious liability to nipple-lesions. The invasion may be subcutaneous, and by way of the lymph-vessels deeply into the interstitial connective tissue of the gland, or much more commonly it is by way of the milk-ducts directly into the parenchyma. Infection once set up, milk-retention, by widening the ways of access to the deeper parts, favors the extension of the pyogenic inflammation.

The positive knowledge of the etiology and true pathology of phlegmonous mastitis gained by bacteriological studies has less bearing perhaps upon the treatment, which must still be conducted in accordance with accepted surgical procedures, than upon prophylaxis. The hardening of the surface of the nipples by daily bathing with cold water and gentle frictions during the later months of pregnancy, and their systematic bathing after nursing, long advised by cautious midwives, have now more than a mere empirical basis. To avoid all maceration and guard them by vaseline or oil while yet sound, and to heal without delay each fissure or abrasion so soon as it appears, are measures no longer to be lightly neglected. "Sore" or "cracked" nipples are troublesome enough in themselves; in the light of their relation to "gathered breast" they acquire a new and serious importance.*

*Dr. Ernst's article on another page will be read with interest in this connection.

NOTES FROM SPECIAL CORRESPONDENTS.

LONDON.

THE date for the reopening of the medical schools in England is now close at hand, and with the resumption of teaching comes a general revival in the interest of medical work. Within the last three or four years great improvements have been made by several of the smaller schools in their buildings. At Charing Cross, St. Mary's, and Westminster new school-buildings have been erected at very considerable cost: an immediate increase in the number and also—it is said—in the quality of the students followed the provision of theatres and laboratories adequate to the needs of modern medicine, so that the staffs of those hospitals by whom serious pecuniary responsibilities must have been undertaken have already begun to reap their reward. This year the arrangement made with the Science and Art Department comes into force: under it the students who enter the medical schools attached to the Middlesex, Charing Cross, St. George's, and Westminster Hospitals will receive instruction in preliminary science in the Science Classes of the Department at South Kensington. The student pays a composition-fee to the school of the hospital of his choice, and the school pays a capitation-fee to the department. The scheme is generally considered to be a move in the right direction: the attempt to keep up a complete series of classes for instruction in the preliminary sciences put a severe strain upon the resources of the smaller schools, and it has been very commonly said that not only the teaching but the apparatus has not been up to the mark. The great State Department at South Kensington commands not only most perfect apparatus, but teachers of the highest ability. Professor Huxley was for many years its guiding spirit, and, though ill health has compelled him to relinquish all work, he has left pupils worthy of his reputation. This arrangement between these medical schools and the Science and Art Department is only temporary. In the course of years it is possible that they may combine together to erect and maintain a combined school for preliminary science, which would be under the direct control of a joint committee. The success of the scheme will probably have an injurious effect upon University and King's Colleges, especially upon the former. For a long time University College had everything its own way, and the services which it rendered to biological science can never be forgotten, and indeed mark an epoch in the history of science in this country. First Cambridge, and now Oxford, has established classes and laboratories which are attracting the cream of the students: this scheme of the

smaller London schools will further diminish the attractions of University and King's Colleges, and the larger schools in London are now alive to the importance of having good science schools. With this object the school-buildings of the London Hospital, for instance, have been almost entirely rebuilt, and enlarged to thrice their former capacity. The move to provide residential colleges for medical students is also gaining ground; and if the scheme for obtaining a charter enabling the combined Colleges of Physicians and Surgeons to grant degrees is successful, as there is no reason to doubt, then the supremacy of London as the chief British medical school, now seriously threatened by Edinburgh, will become more firmly established than ever.

A circular recently published containing a sketch of the arrangements already made for the International Medical Congress next year is in one respect a disappointing document, for it shows that, as a rule, the leading men in this country in their several departments have either not been asked to hold office or have declined the honor. Such names as those of Professors Annandale, Burdon-Sanderson, McCall Anderson, Richard Quain, Erichsen, and T. R. Fraser, of Sir William MacCormac, and Drs. Klein, Charles West, Eustace Smith, and Mr. John Simon, give weight to the list in the eyes of Englishmen, but it would not be difficult to strengthen it very materially.

The British Dental Association, a young but flourishing institution, with nearly seven hundred members, held its annual meeting last month. Most of the papers read were of purely special interest, but two were of more general significance. Mr. Fisher, of Dundee, again urged the advisability of providing compulsory attention for the teeth of school-children, and Dr. George Cunningham, of Cambridge, discussed with much acumen the "Relation of Dentistry to the State." The working and poorer classes in this country almost entirely neglect the care of their teeth; among the patients who come to the outpatient departments it is rare to see anything approaching a perfect denture. Dr. Cunningham examined the mouths of a hundred young men who presented themselves consecutively for service in the army at a recruiting-station in London: he found that seventy per cent. were suffering from inflamed and ulcerated gums, twenty-seven per cent. from chronic abscess, that on an average each man had lost or would be the better for losing more than three teeth, and had also four carious teeth that could be stopped. As all these recruits were young men, and as about sixty per cent. were accepted as fit for service in the army, it is safe to conclude that they afford a criterion of the state into which the teeth of the whole class from which they are drawn are habitually allowed to fall. There

are hundreds of dentists who are willing to stop teeth for a very small fee, but the working classes appear not to be sufficiently alive to the advantages which conservative dentistry could confer on them to be willing to expend even the small sums demanded: they seem to prefer to put off the evil day until extraction is the only possible treatment; a small percentage subsequently obtain false teeth, which, however, do not seem to be often well fitted. With that very large and, it is to be feared, increasing class who find the struggle for existence too keen to leave any margin for dentists' fees, however modest, extraction is almost the only treatment. The Dental Hospitals will stop the teeth of patients coming with a subscriber's letter; but this useful work is on so small a scale that it produces but little apparent effect on the general population. Dr. Cunningham sought to show that it would be worth while, from the pecuniary point of view alone, for the state to give attention to the conservation of the teeth of the young men entering the army and navy, at least: a trained soldier, and still more a trained sailor, is an expensive product, and it cannot be doubted that the state loses every year a large sum by the ill health directly or indirectly traceable to painful teeth or imperfect dentures. It is, of course, very difficult to prove the extent of this loss, but, as the richer classes in this country are very assiduous in the care of their own teeth, it ought to be a comparatively easy task to convince our legislators that it would be advisable to establish dental departments on a modest scale in connection with the medical departments of the army and navy.

A project is now on foot which may have a most beneficial effect on the progress of the science of hygiene in this country. Soon after the death of Dr. Parkes, Professor of Hygiene in the Army Medical School at Netley, and author of the well-known book, a meeting of his friends determined to perpetuate his memory by bringing together a collection of sanitary apparatus. The Parkes Museum has been kept together ever since, and a library of some importance has been brought together; but the pecuniary position of the undertaking has never been satisfactory, in spite of the disinterested efforts of most of the leaders in practical sanitary work. Another body, the Sanitary Institute of Great Britain, came into existence at about the same time as the Museum, and has gradually fought its way to general recognition. It holds every year a Congress in some provincial town, and during the Congress an exhibition of novelties in sanitary appliances is organized and kept open for about three weeks; the Institute also grants diplomas to District Surgeons and Inspectors of Nuisances after examination, and publishes an annual volume of Transactions. It had long been felt that these two institutions could work

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much more effectively and at a greater economy in time and money if they could be amalgamated. This process is now in progress: the constitution of a new body to combine the work of the Parkes Museum and the Sanitary Institute has been provisionally approved by the members of both, and I understand that those who know most of both look forward hopefully to a satisfactory arrangement before very long.

A medical question of international importance—the present unsatisfactory position of ship-surgeons—has recently attracted some attention in the lay press. The greater part of the transatlantic passenger trade, and almost all the trade to India, Australia, New Zealand, and the Cape of Good Hope, are at present in the hands of English companies, whose fleets are officered by Englishmen. Some of these enormous boats afford a temporary home to a very large number of persons,—travellers, emigrants, and seamen; the passengers and emigrants at least are often placed under circumstances of great discomfort, involving some danger to health, and statistics appear to show pretty plainly that the mortality on board transatlantic liners is excessive. Such being the case, it is much to be regretted that there is practically no sort of control over the appointments made by the companies to the post of medical officer in charge of these passenger-ships. At present the only requirement is that the individual thus appointed shall hold a diploma qualifying him to practise in Great Britain or Ireland. Ship-owners as a rule do not, it is said, favor independence of character: a surgeon who will go through the routine prescribed by the Board of Trade, who shuts his eyes to deficiencies in the sanitary arrangements, who will accept small pay, and, above all, who will make no complaints, is the officer most desired; if in addition he is sober and makes himself socially agreeable to the passengers, then he will be all that any ship-owner could wish a surgeon to be. Official inquiry has left no doubt that the regulations of the Board of Trade, especially those connected with the provision of proper hospital accommodations on board, are systematically neglected; representations bearing on this question and giving well-authenticated examples of the abuses which exist have been made to the Board of Trade and also to the Royal Commission on Loss of Life at Sea. This Commission, however, has not recently given any signs of life, and, in the impotent state to which politicians of all shades of opinion have been reduced by the events of the past year, it is highly improbable that any useful ameliorative legislation will be possible perhaps for years. The advocates of reform urge that the medical officers of passenger-ships ought to be independent of the caprices of owners or captains; they urge that a Mercantile Medical Marine Service should be formed, and placed under

the control either of the Board of Trade or of the Local Government Board, which is already charged with the supervision of Port Sanitary authorities. The surgeon of a ship, especially of an emigrant-ship, is not only a medical but a sanitary officer, and the proper discharge of his duties in the latter capacity is a matter of great importance to the United States and other countries which receive immigrants in large numbers. The Australian colonies long ago appreciated this, and established a Colonial Emigrant Medical Service, which attracted a very competent class of men. It is now asked that the British government should establish a Mercantile Marine Medical Service on the same lines, and it is urged that if the members of such a service were assured of adequate pay, promotion, and pension, and were made responsible in sanitary matters to a government department, a thoroughly good class of men would be led to join, to the advantage alike of passengers, emigrants, owners, and of the countries concerned in the trade.

The death of Dr. James Wakley, from epithelioma of the tongue, occurred on August 30. Since the death, in 1862, of Mr. Thomas Wakley, M.P., the founder of the *Lancet*, Dr. James Wakley had acted as editor of that influential journal. He was seldom seen in the medical world of London, but had the power of attracting to himself a band of zealous and enthusiastic workers: by their aid he had more than maintained the high standard of excellence reached during his father's conduct of the *Lancet*.

DAWSON WILLIAMS.

September 18, 1886.

JAPAN.

THE CHOLERA IN JAPAN.

THE principal topic of medical interest in the capital has been for some time past the progress of the cholera in this country. Although Asiatic cholera can hardly be said to be epidemic in Japan in the sense that it has recently been epidemic in some European cities, yet, nevertheless, having stricken down nearly one hundred thousand persons in less than three months, of whom over half have died, it is not to be wondered at that the presence of such a disease should prove a source of great anxiety to the people, and demand every possible combative measure to be taken upon the part of the government and the medical profession. That the people are thoroughly alarmed there can be no doubt, as one is constantly meeting persons upon the streets with carbolized handkerchiefs to their noses and bottles of cholera-mixture in their hands. It is fortunate that such a wholesome dread exists, as it leads to more care being taken as to diet and drink; while on the part of the government every precaution is being ob-

served against further spread, and present arrangements for the care and treatment of cholera-patients are being perfected.

The cholera, although it has carried off so many citizens, has not proved an unmitigated calamity. The majority of deaths has been among the lower classes, with only here and there one of the gentry; but the government and people have become thoroughly awakened to the necessity of making immediate improvements in the water-supply and drainage of the larger cities, as well as in laws governing tenement-dwellings and the sale of deleterious foods. Not that these improvements have not been going on for the past ten years, but that they should be pushed faster.

Tokyo as a capital city is far ahead of any Eastern capital in its sanitary arrangements, and if one were to compare its death-rate with those of some Western cities the result would not be greatly against it, as the rate, I think I am safe in saying, is seldom above twenty-six per thousand.

The city, including within its urban and suburban jurisdiction a population of over 1,200,000 within a radius of about six miles in every direction, has six thousand acres in public parks, and probably as many more acres in temple-grounds; the former giving one acre to about every two hundred inhabitants, which is about the same proportion as in London, and is exceeded only by Paris, Vienna, Washington, Dublin, and Boston; while it is equal to that of Chicago, and stands above that of New York, Berlin, Philadelphia, Baltimore, and San Francisco.

It has a very extensive water-supply, which was undoubtedly originally good, but, as has been found upon analysis to be the case, is at the various points of delivery very much deteriorated from passage through miles of wooden pipes. The two supplies of the city are known as the Kanda and the Tamagawa canals, with the former of which there are connected about twenty-nine miles of wooden pipes, and with the latter about thirty miles, or nearly sixty miles in all, supplying, it is stated, about forty million gallons of water daily through some eight thousand wells and many overflows. If all this water were used, there would be a proportion of about thirty-three gallons per head, which, taking twenty-six gallons per head as a standard,—the allowance made by the engineer of the new water-works for Yokohama,—would be a liberal supply; but it is probable that the actual supply per head per diem is not as abundant, although there are numerous surface-wells besides.

The drainage is mostly through surface-drains, some of which are washed with water from the aqueduct-overflows, and are thus kept tolerably clean.

It will be seen from the above that the water-supply and drainage of Tokyo are two

very important factors bearing upon public health in the city, so that it is probable that the present epidemic will have the effect of hastening the laying of iron pipes instead of the leaky wooden ones, and of causing the drains to be rebuilt; in which case, as I have said, it will not prove an unmitigated calamity.

Whenever such improvements have been made, we may hope, in Tokyo at least, to suffer less from cholera epidemics than hitherto. It has been stated that statistics of this and previous epidemics in Japan show that whenever an epidemic strikes a town it does not leave it until at least one per cent. of the inhabitants have been carried off by the disease. If this be true and the drinking-water be the principal means of infection, we may hope for future immunity, having before us the result of the introduction into Glasgow of Loch Katrine water in place of that from the Clyde, before which and during the epidemics of 1832, 1849, and 1854 the mortality from cholera was twelve per thousand, while it amounted only to .16, or one-eightieth, thereafter in the epidemic of 1866.

The latest returns of the cholera show that since its beginning to the 6th of September 97,897 cases have occurred, with 61,041 deaths: or about 62½ per cent. of deaths. The highest number of cases is reported from Osaka: 17,456 cases with 13,296 deaths in urban districts, and 10,473 cases with 8237 deaths in the suburban districts, making the number of cases in both urban and suburban districts 27,929, and the number of deaths 21,533. Tokyo has already had 9140 cases with 5749 deaths in the urban districts, and 8110 cases and 5284 deaths in the suburban districts, making 17,250 cases in all, with 10,973 deaths.

The *Sei-I-Kwai Medical Journal* published September 4 contains the following editorial:

"The present epidemic may perhaps be looked at, following so close upon that of last year, as the continuation of the epidemic of 1885, in which, from August 23 to November 30, 11,927 cases occurred, with 7152, or 59.96 per cent. of deaths, although there were only sporadic cases of cholera in the country between the end of one epidemic and the outbreak of the other.

"If compared with previous epidemics, its resemblance to that of 1879 will at once be noticed. This epidemic of 1879, which was preceded by a milder epidemic (1877), began on the 14th of March, and only gained force early in July, reached its climax in the week ending August 28, diminished greatly immediately afterwards, and by the middle of September was under control; after which there was but one exacerbation, which occurred in the first week in November, the epidemic gradually dying out and disappearing in the month of December following. The total number of cases in this epidemic was 162,637,

of which 105,786, or 65.04 per cent., died. Referring to the tabular statement published by the Sanitary Bureau, it appears that the greater number of cases and deaths occurred before the end of August, and from that time onward until the end of the year the epidemic gradually lost force. Comparing the death-rates of the two epidemics, it will be noticed that the rate of 1879 was 65.04, while that of this year is thus far 63.55, or one and a half per cent. lower. We may therefore feel encouraged, as the number of cases and deaths has only been two-thirds of the number of cases and deaths at the same stage of the epidemic of 1879, and also as the death-rate is somewhat lower; and we may reasonably hope that the force of the epidemic will soon be broken. Certainly the reports from Yokohama and other provincial towns are encouraging, the number of new cases having been reduced to less than a dozen daily. In the capital, however, the epidemic still continues to rage, the number of cases having been slowly increasing, with a corresponding number of deaths, up to the 25th; the number of cases, as shown below, is now about two hundred to three hundred daily, with from one hundred and fifty to two hundred deaths. The authorities are leaving nothing undone to check the epidemic, and have undoubtedly, in spite of the bad influence of great heat and dry weather, kept the disease from spreading to the same extent that it had at the end of August in the epidemic of 1879."

It may therefore be reasonably hoped that the worst is over, although the number of cases in Tokyo reached three hundred and fifty, with two hundred and twenty-four deaths, on the 1st instant.

One of the good results of the present epidemic has been the stimulus it has given to the careful study of the disease and the perfection of means to prevent its spread. The Japanese Health Society has published minute descriptions of the malady and the principal methods of treatment; while, with other societies, it has widely disseminated this information in popular form. The government has also issued directions respecting the management of the disease, which are posted in conspicuous places. Patients suffering from cholera are, as soon as reported, unless they can in the judgment of the police be properly cared for at home, taken upon litters to the cholera-hospital, where they have every attention and the best of medical skill. The houses where cases have occurred are usually quarantined for a week thereafter, and the bedding and other articles used by the patient or likely to have been infected are burned. In case the patient dies, his body is cremated.

Nearly all the wells in the city have been examined and their waters analyzed, and, in case of their being unfit for drinking purposes, their use for such purposes is prohibited.

It will be seen from the above that the authorities are thoroughly in earnest, and are bringing every resource to bear in stamping out a disease which had threatened to become a scourge to Japan.

TOKYO, September 9, 1886.

PROCEEDINGS OF SOCIETIES.

THE AMERICAN GYNÆCOLOGICAL ASSOCIATION.

(Continued from page 32.)

Second Day.

At the opening of the morning session the Secretary, Dr. JOSEPH TABER JOHNSON, presented a paper contributed by Dr. JOHN GOODMAN, of Louisville, Kentucky, and read it in the absence of the author. It was entitled

ERGOT AFTER LABOR.

The practice of giving ergot has been sanctioned by the highest authorities. It is generally claimed that it acts by preventing after-pains, by hastening involution, preventing hemorrhage, and averting septic poisoning. It will be admitted that if its good results could be obtained without incurring additional danger it is worthy of being used, but if there is added danger it should be investigated. In one case uterine spasm and ergotism followed the administration of a single drachm of the fluid extract after confinement. On the third day a slight fever began, which continued for a week; there was no secretion of milk. Though previously prolific, the patient never afterwards conceived. A second case was a primipara, who had been delivered by forceps. Ergot was given as before. On the third day retention of urine required the introduction of the catheter; on the sixth day fever set in, with tenderness of the abdomen, offensive lochia, and a clot of blood was expelled. In spite of treatment, the patient died with septicæmia on the fourteenth day after labor. The explanation of the case is that the uterus was made to contract firmly upon a clot of blood, which, unable to escape, underwent putrefactive decomposition, and the products were absorbed, causing septicæmia. Such attacks the author had noticed a number of times, and thinks that others must also have seen them, but attributed them to malaria or milk-fever. The fever lasts from one to five days, and he thought must be due to some action of the ergot upon the system at large.

That ergotism thus early introduced can hasten involution he considered an absurdity; even if it could be hastened, he questioned its desirability. Involution is a normal process, like digestion, and it must proceed according to physiological law. The routine administra-

tion he condemned as being as unphilosophical as it would be to give a dose of pepsin after each meal. The most marked case of subinvolution he had ever seen occurred in a case in which a midwife had given ergot freely during labor. The action of ergot upon the muscular tissue of the uterus and blood-vessels he regarded as antagonistic to the normal process of involution after labor.

The only benefit which could accrue from the administration of ergot after labor is the prevention of hemorrhage. His rule was never to give ergot unless post-partum hemorrhage was imminent. The best method of administration he believed to be by hypodermic injections of ergotine, given every fifteen or twenty minutes until the effect is produced.

The PRESIDENT called upon Dr. BARKER to open the discussion.

Dr. FORDYCE BARKER replied that he had very little to say, except that this was by far the most original paper that he had ever heard read before the Society: original in its conclusions and original in its reasoning. It is a subject which has been frequently discussed, and upon which each have their own opinions made up, and therefore hardly requires discussion.

Dr. THADDEUS REAMY said that he would anticipate the publication of a paper on this very subject, which he had prepared to read before the annual meeting of the Cincinnati Academy of Medicine, sufficiently to say that in it he had gone over the question, and had condemned the routine administration of ergot in confinement as unnecessary and injurious. The contraction produced by ergot is a tonic spasm of the uterine muscle, and is very different from the normal rhythmical contraction which should occur after labor. He felt assured that in the course of the next six or eight years there will be an entire revolution in the obstetric procedure in respect to the administration of ergot after labor.

Dr. BARKER stated that in the absence of the author of the paper he did not wish to speak when called upon to open the discussion, but since the same views have been expressed by the President he thought that they should be controverted.

Dr. GOODELL said that he was not an extreme partisan of ergot, but he could not accept the conclusions of the paper. He believed them to be based upon insufficient experience. The cases reported are explainable upon other grounds. The first was one of fibroid polypi; the second, of septicæmia. There is no evidence that ergot was responsible for the accidents in either case. The lecturer invokes "Dame Nature," but forgets that we are living not in a natural state, but under artificial conditions. After-pains rarely occur in primiparæ. In twenty-five hundred cases of obstetrics he had never seen any bad results from the exhibition of ergot; the single

dose of ergot after labor can exert but little influence upon involution, which is a process of fatty degeneration. In these days there is less danger of septicæmia since we have learned the use of antiseptics, and we do not need to give ergot to prevent it. The principal utility of the drug is in preventing hemorrhage.

Dr. ENGELMANN still holds the views that he expressed in a paper read at a former meeting with regard to the dangers of the abuse of ergot; he believed that hot water, the faradic current, and the other resources of antiseptic midwifery would enable us largely to dispense with the use of ergot after labor. In spite of what has been said and written, ergot will remain a valuable remedy, and he would not venture to say because it had been abused that it should be abolished. The injury which has been caused by it has been due to the abuse and not to its proper use.

Dr. PARVIN called attention to the fact that it had been assumed in the discussion that ergot always produces spasm of the uterus; he believed it to be a question of dose. Nothing is better established in therapeutics than that small doses of ergot may produce tonic contraction of the uterus. He refused to admit the argument that ergot should never be given prior to the emptying of the uterus, since the practice of two men who have been most successful in the treatment of placenta prævia—Dr. Ellwood Wilson, of Philadelphia, and Dr. Murphy, of England—has been to use ergot. Again, in cases of lingering labor where no obstruction to delivery exists, small doses of ergot will produce expulsion of the child. If women were perfect in structure and function, labor would be a normal process and obstetricians would not be required; but, the contrary being the case, the argument of the lecturer falls to the ground; nature in civilized life requires the assistance of art. By the use of ergot he had found that involution was not prevented, but hastened.

Dr. REEVE wished to enter a similar protest against the argument of the paper.

Dr. SKENE asked, if the deductions of the paper were accepted, whether it would tend to advance the obstetric art or put it back about seventy-five years. He believed that experience had proved the usefulness and limitations of ergot. The results reported from the use of ergot in the West were certainly different from those in the East. He hoped that the prediction of the President would not be fulfilled, but that in five years he will forget all that he has said about ergot.

Dr. WILLIAMS, of Boston, believed that ergot has a function to perform in obstetric medicine. In an experience of thirty-five years he could not recall a single case where after using it he had regretted doing so.

The President's address was then delivered by Dr. THADDEUS A. REAMY, of Cincinnati.



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Mother's milk contains no starch.

Mother's milk contains no cane-sugar.

Mother's milk contains no malt-sugar.

Therefore, infant foods which contain these present to the infant substances which are foreign to its natural food, and which are unsuited to the physiology of infant digestion.

Normal human milk is persistently alkaline; this alkaline reaction is due to the presence of peculiar mineral and saline constituents which differ materially from those of cow's milk, which is slightly acid in reaction.

It is impossible to imitate this peculiar reaction of normal mother's milk by the use of soda or potassa bicarbonate, or lime-water.

Nor do these alkalies adequately represent the saline and mineral constituents of human milk, which are such important elements in the nutrition of the infant, being vitally necessary to the development of its osseous system.

The caseine of cow's milk differs radically in character from the albuminoids of human milk.

Not one of the Farinaceous, Malt, Liebig, or Condensed Milk Foods contains any principle capable of acting upon caseine, or digesting it, or in any way converting it into the peptone-like form in which the albuminoids exist in human milk.

Peptogenic Milk Powder yields a "HUMANISED MILK"

which, in taste, physical characters, and chemical constitution, approaches very closely to woman's milk:

1. Because it contains milk-sugar, and no other sugar, and no starch.
2. Because it contains the digestive ferment trypsin, which converts caseine into peptone.
3. Because it contains those various organic combinations of Phosphates, Chlorides, Potassium, Lime, Iron, Magnesium, and Sodium which are always normally present in woman's milk.
4. Because it gives the alkaline reaction characteristic of human milk, due to these saline and mineral constituents.

A candid consideration of these facts must inevitably lead to the conclusion formed by Dr. Albert R. Leeds,—viz., "That the Peptogenic Milk Powder yields an artificial human milk which in every particular more closely resembles average normal mother's milk than that obtained by any other product or process known."

Respectfully submitted,

FAIRCHILD BROS. & FOSTER,

82 and 84 Fulton Street, NEW YORK.

THE ADDRESS OF THE PRESIDENT.

At the beginning of the second decade of the Society, the speaker could not but congratulate the Fellows upon the enduring monument they had erected to the science of gynaecology in the ten volumes of Transactions which had been published. The work done by the Society and individually by the Fellows had contributed largely to advance in the departments of obstetrics and gynaecology.

After pausing to pay a brief tribute of respect to the memory of Dr. Albert Holmes Smith, of Philadelphia, an ex-President of the Society, whose death had occurred during the year (and an appropriate biographical sketch of whom would be contributed by Dr. Parvin to the Transactions), he took up the principal subjects of his address. Ovariectomy has reached such perfection that Tait can report a series of one hundred and thirty-nine cases without a single death. But there is a danger that the gravity of the operation may be underrated,—undertaken by those who are unaware of the essentials to its successful importance,—and thus ovariectomy be brought into disrepute. Is the operation for removal of the ovaries for supposed beginning cystic degeneration, cirrhosis, catarrhal salpingitis, chronic catarrh of the tubes, stenosis, congestion, enlargement, always justifiable? He thought not. Sinless ovaries have been sacrificed, and women mutilated who might have recovered by hygienic treatment, electricity, vaginal irrigations, local applications, and rest. Statistics of Dr. Coe show that there has been a little too much enthusiasm manifested for unsexing women. Much of the pathology has been constructed after the operation in order to excuse the removal of ovaries and tubes. He applauded the conservatism of Schroeder in leaving the undiseased portion of the ovary where possible. While as a Society and individuals he called upon his hearers to do all in their power to proclaim and practise against this unsexing enthusiasm, and to endeavor to determine its limitations, at the same time he would not wish to be understood as saying one word against spaying in properly-selected cases. Abdominal surgery has conferred no greater blessing nor shone with brighter lustre than in the rescue by these operations of certain subjects, curable by no other means, from death, or from a life worse than death.

The triumphs of ovariectomy have stimulated abdominal surgery, and have demonstrated the fallacy of the old ideas of peritoneal intolerance. One of the recent advances of this character is seen in the adoption of laparotomy for suppurative peritonitis, which has been performed with encouraging results in England.

Alexander's operation is still on trial, but, as it rests on sound principles, it seems prob-

able that it has a future. The results, however, have not been very promising thus far, it must be confessed. Even in the hands of experts it has signally failed, and the mortality is variously stated at from one to six per cent., and many of those apparently relieved by the operation show relapses.

The means for the recognition of early signs of pregnancy are still lamentably defective, and the attention of the Fellows was directed to its importance. Diagnosis other than by surgical means he feared had recently been too much neglected. High diagnostic skill is the first essential to successful practice,—“*qui sufficit ad cognoscendum, sufficit ad curandum.*”

Medicinal therapeutics have not received as much attention as they should have done in the proceedings of the Society. The discovery of some agent with a specific action upon the ovary might prove an ovarian saviour. But this neglect of medicine in this field is not confined to the Society: it is one of the derelictions of all countries, to which attention had been well directed by Dr. Meadows in his address on obstetrics before the last meeting of the British Medical Association.

Electricity has a place in our therapeutics, and deserves an intelligent trial at the hands of the profession. It has fought its way to the front through a most obstinate scepticism, bred largely of ignorance of the indications for its use and mode of employment. In the treatment of extra-uterine pregnancy, it has been demonstrated beyond a doubt that it is the safest and most efficient treatment yet proposed for this condition. It is worthy of note that this treatment was first employed and its value demonstrated in this country by Dr. J. G. Allen, of Philadelphia.

In the treatment of uterine fibroids ergot has been given with commendable enthusiasm and patience, especially by Apostoli, with very encouraging results. He had himself seen admirable effects with regard to arresting growth in these cases with its aid. Notwithstanding the brilliant results reported from the practice of Keith, the question may still be asked whether hysterectomy for uterine fibroids is justifiable. The fact that the disease has a brief active life and of itself rarely kills suggested a negative answer to the mind of the speaker.

Cases of severe dystocia present difficulties and dangers which have hitherto been thought to require craniotomy. The improvement in hygiene of childhood, thus preventing deformity, and the development and perfection of the Cæsarean operation, and its modifications by Porro and Müller and Thomas (laparo-elytotomy), the resort to premature labor, turning, improved forceps, have each contributed largely to diminish the proportion of cases requiring interference. The Säger-Leopold operation will give as satisfactory

results here as it has abroad when it is done deliberately, early in the labor, and as a primary measure. As the result of recent advances, it does not require a seer's vision to declare that in the near future craniotomy will be abolished, and the instruments for its perpetration relegated as curiosities to museum-shelves.

The total extirpation of the uterus for cancer has experienced a renaissance from the successful results reported by German operators. The most rational method for its performance was devised by Dr. S. C. Lane, of California. In the opinion of the speaker, the operation is justifiable only in rare instances where the disease is confined to the body of the uterus, the cervix and vagina remaining comparatively free. It is undoubtedly justifiable in all cases of spindle-cell sarcoma of the body.

With regard to the etiology of cervical epithelioma, he committed himself to the belief that the cervical traumata of parturition strongly predispose to the development of carcinoma. In an experience of thirty years, with many hundreds of cases, he had seen but three cases of cervical epithelioma in the virgin. Emmet's operation for restoration of the cervix for manifest fissure is therefore justifiable on the ground of prophylaxis against malignant disease, if on no other.

In conclusion, the speaker discussed the curette, and recited cases where bad results had followed its use. He warned his audience especially against its use immediately after the removal of tents of tupelo or laminaria. He now uses rapid dilatation in preference to tents, and employs the curette afterwards if required. He then read the report of a remarkable case in which the copper curette by accident penetrated the uterine fundus without being followed by peritonitis or other symptom of disorder: the patient is still living.

After the termination of his address, the President strongly advocated the adoption of the proposition for the Society to join with the Surgical Association and other special organizations in a Congress to be held at Washington.

A vote of thanks was tendered the President for his interesting address.

MATERNAL IMPRESSIONS.

Dr. FORDYCE BARKER, of New York, read a paper in which a number of instances, both among the lower animals and in man, were cited in which emotional and physical impressions affected the development of the foetus or the structure of the child.

Drs. BUSEY and BILLINGS discussed the paper, and claimed that if a law exists it must be universally applicable when the conditions are identical. It is necessary to ascertain these conditions in order to discover the

law. At present no such law is known to science.

Dr. GOODELL had observed some peculiar coincidences which he could not explain, but was not willing to admit that a relation of cause and effect had been demonstrated to exist.

On motion of Dr. CHADWICK, a committee of three was appointed on this subject, to report the results of their investigations at a future meeting of the Society.

Dr. JOHN BYRNE, of Brooklyn, New York, read a paper describing the

TREATMENT OF PROCIDENTIA UTERI BY THE GALVANO-CAUTERY.

Permanent and satisfactory results in cases of procidentia uteri can only be obtained by amputation of portion of the entire cervix, added to operations upon the vagina or perineum which in themselves would be inefficient except in so far as they present obstacles to vulvar protrusion. The object of the paper was to direct attention to the important gain obtained from the alterative effect of the inflammatory processes which result in a remarkable degree when the galvano-cautery is employed in performing amputation of the cervix. In a case of extreme procidentia with prolapse of the vesico-vaginal wall, complete restoration to health followed the amputation of part of the cervix in this manner. Nine cases in all had been treated with the galvano-cautery; in three partial amputation had been performed. In six others linear cauterization alone was required.

Dr. GEORGE J. ENGELMANN, of St. Louis, read a paper on

ELECTRICITY IN GYNÆCOLOGICAL PRACTICE.

The difficulties which had beset the introduction of this agent in uterine surgery have now been surmounted, and the indications for its employment are being better defined by experience. The numerous conditions in which it had been used with reported advantage were mentioned. In obstetrics it is useful in uterine inertia during or after parturition, in cases of weak and irregular labor-pains, in post-partum hemorrhage and subinvolution, in paralysis of bladder or rectum after delivery, and in checking the development of the foetus in extra-uterine pregnancy. Acute inflammation is the only contra-indication to the employment of electricity; it may, with proper care, be employed in subacute inflammation of the pelvic organs.

Dr. W. H. BAKER, of Boston, read a paper on

ELECTROLYSIS IN GYNÆCOLOGICAL PRACTICE.

The treatment of uterine fibroids may be successfully accomplished by the galvanic current, and the exudation in chronic pelvic cellulitis may also be removed by the same means. His conclusions were: (1) Electricity

is a useful agent in the treatment of certain cases of fibroid tumors of the uterus, as well as chronic circumscribed perimetritic affections. (2) When applied to fibroid tumors of the uterus, electro-puncture is the most rational and efficient method. (3) In these cases it should not be applied too frequently. (4) Cases of perimetritic affections treated by electrolysis require careful selection, with especial regard for the absence of acute symptoms.

A general discussion upon electricity in gynecological practice, as well as obstetrics, occupied the remainder of the afternoon session.

Third Day.—The President in the chair.

Dr. JAMES B. HUNTER, of New York, read a paper on

PERSISTENT PAIN AFTER ABDOMINAL SECTION.

The causes of pain referable to ovaries, tubes, and peritoneum existing prior to operation, and those which might persist or develop subsequent to abdominal section (hernia, painful cicatrix, etc.), were considered in detail. The lecturer recommended that cases in which pain had existed prior to and had demanded the operation should be carefully watched for any return of the symptoms for at least two years subsequent to it. Peritonitis of any degree requires treatment not more for its immediate consequences than for its remote dangers. With regard to secondary operations for the relief of pain, experience has shown that they only occasionally afford relief and rarely effect a cure. In conclusion, he recommended that a guarded prognosis be given in all cases where abdominal section is undertaken for the relief of pain.

The paper was discussed by Drs. SKENE, SUTTON, WYLIE, BATTEY, H. P. C. WILSON, MANN, and J. TABER JOHNSON.

THE BLUE DISCOLORATION OF THE VAGINAL ENTRANCE AS A DIAGNOSTIC SIGN OF PREGNANCY

was the title of a paper by Dr. JAMES R. CHADWICK, of Boston, Massachusetts. He believed that, when present, this discoloration, seen more particularly on the anterior wall and about the urethral orifice, is of decided value; it is absent in about one-third of the cases during the first three months. Its absence cannot be accepted as negative evidence of the existence of pregnancy.

In the discussion, participated in by Drs. EMMET, PARISH, H. P. C. WILSON, ENGELMANN, SKENE, and JOHNSON, the presence of this appearance in some cases of morbid growths of the uterus or its appendages was mentioned, and the general opinion appeared to be that no positive sign is at present known which will enable us to make a diagnosis of early pregnancy.

The President-elect was introduced, and made a brief address, regretting that he was imperatively called to New York and could not wait until the close of the session.

In the afternoon the Society was called to order, Dr. REAMY in the chair.

PRESENTATION OF SPECIMENS OF DISEASED OVARIES, AND ALSO FROM THREE CASES OF SUPRA-VAGINAL HYSTERECTOMY.

Dr. R. STANSBURY SUTTON, of Pittsburg, exhibited specimens and detailed the histories of several cases of oöphorectomy and three cases of hysterectomy by the supra-vaginal method. The latter operation, when undertaken for the relief of uterine fibroids, he considered rarely justifiable. Where hemorrhage is great and uncontrollable, and the patient is rendered a hopeless invalid otherwise, the question of operation comes up for serious consideration. The cases in which it is required are, however, comparatively few.

Remarks upon the paper were made by Drs. REEVE, WILSON, WYLIE, and REAMY, and the reader of the paper closed the discussion.

Dr. WILLIAM H. PARISH, of Philadelphia, read a paper on

THE HIGH MORTALITY OF RECENT CÆSAREAN OPERATIONS IN THE UNITED STATES.

A study of the statistics of the operation of Cæsarean section in this country, as prepared by Dr. R. P. Harris, reveals the startling fact that within the last five years the mortality has apparently steadily increased. The causes for this state of things are two: (1) Delay in resorting to the operation; and (2) Attempts at delivery prior to the abdominal section.

The paper was discussed by Drs. REEVES JACKSON, BAKER, JOHNSON, and the PRESIDENT.

An obituary of the late Albert H. Smith, prepared by Dr. THEOPHILUS PARVIN, was read by title and ordered to be printed in full in the Transactions.

At the business meeting the following were elected to active fellowship: Charles M. Green, M.D., of Boston; A. F. A. King, M.D., of Washington, D.C.; E. C. Dudley, M.D., of Chicago; A. W. Johnstone, M.D., of Danville, Kentucky; H. Marion Sims, M.D., of New York; B. F. Baer, M.D., of Philadelphia; Joseph E. Janvrin, M.D., of New York; W. Gill Wylie, M.D., of New York.

A large number of physicians were in attendance and invited to participate in the proceedings.

The annual dues were, on motion, reduced to fifteen dollars per annum.

Resolutions were adopted favoring the formation of a Congress of American Physicians, provided that the arrangement shall not require a surrender of the distinctive title or character of this Society, or interfere

with the full and entire management of its own affairs in every respect.

The Association then adjourned.

NEW YORK PATHOLOGICAL SOCIETY.

A STATED meeting was held September 22, 1886, the President, JOHN A. WYETH, M.D., in the chair.

MULTIPLE FRACTURE OF THE PELVIS AND RUPTURE OF THE BLADDER.

Dr. GEORGE F. SHRADY presented the pelvis and bladder removed from the body of an Italian who had been crushed laterally between two moving cars. The patient was brought to the hospital twenty-four hours after the accident, when rupture of the pelvis and extravasation of urine were recognized. Dr. Shradly performed median lithotomy, and on introducing his finger into the bladder found a rupture through the posterior wall on the right. The boggy feel of the pelvic tissues indicated extensive extravasation of urine. The vesical rent was thought to be below the peritoneal line. Suprapubic incision was made, with the intention, should the rupture exist above the peritoneal line, of cleaning out the peritoneal cavity and sewing up the rent. The rent proved to be below the peritoneal line, and through drainage was established. Some loose spiculæ of bone were removed from the pubic arch. The patient did well for twenty-four hours, but finally died on the fifth day after the operation. The post-mortem examination revealed eight fractures at the junction of the pubic and ischiatic bones, and also a fracture through the sacral foramen. The bladder was ruptured on the right and left sides.

CARDIAC HYPERTROPHY—CHRONIC DIFFUSE NEPHRITIS.

Dr. FRANK FERGUSON presented quite fresh specimens illustrating marked capillary injection of the stomach, cardiac hypertrophy, tortuosity, lengthening, and thickening of the arteries at the base of the brain, and advanced diffuse nephritis. The patient's father, mother, and sister had died of cardiac disease. His symptoms were those pertaining to disease of the kidneys and of the heart.

CEREBRO-SPINAL FEVER.

Dr. J. LEWIS SMITH presented the brain of a child, aged 27 months, dead of cerebro-spinal fever. It was an inmate of the Foundling Asylum, and had been tolerably healthy up to three weeks of its death, when it had a convulsion. Three weeks later it had another convulsion; the movements of the left arm became impaired; the rectal temperature was 104° F. There was tonic contraction of the left leg and thigh, but with a little force the limb could be extended. The pupils were

moderately dilated, and responded feebly to light. Sight was apparently gone. The *tache cérébrale* was well marked. There was no rigidity of the muscles of the neck. Death took place after three days.

At the base of the brain the pia mater was cloudy, and there were streaks of fibrinous exudation, especially along the fissure of Sylvius, and in this locality were some minute points, not believed, however, to be tubercles. There were no tubercles elsewhere in the body. The pia mater in parts of the cord was injected.

Dr. Smith made the case the basis of some remarks relating to diagnosis of this disease, which he thought was sometimes mistaken for other meningeal affections. Cerebro-spinal fever had become endemic in New York, Philadelphia, Chicago, and other cities throughout the United States. Hence the importance of diagnosis.

ABDOMINAL HÆMATOCELE WITH HEMORRHAGE INTO THE PERITONEAL CAVITY.

Dr. H. N. HEINEMAN presented the specimens, removed from a woman 36 years of age. Three weeks before admission to the hospital she was suddenly seized with cramps in the abdomen, and pains had continued since. A hard mass was felt in the right iliac region, which six days later had increased in size, and the patient was failing, and died the next day. In the abdominal cavity, anterior to and below the promontory of the sacrum, projecting into the pelvis above the brim, was a firm mass, consisting of blood-clot, bound down, but extending above behind the peritoneum. Blood had entered the peritoneum, covering the kidneys, liver, lateral walls of the mesentery, and intestines. There was evidence of abortion.

CEREBRAL APOPLEXY WITH REPEATED HEMORRHAGES.

Dr. HEINEMAN also presented the brain of a man, aged 21 years, who was admitted to Mount Sinai Hospital July 9, 1886. That morning he had suddenly been seized with convulsions and unconsciousness, from which he gradually recovered. He had at times had headache. There were systolic cardiac apex and pulmonic murmurs. The patient was dull, but there was no paralysis. On the 14th the patient left the hospital without any symptom of disease, but weak. Three or four days later he began to complain of frontal headache, pain in both eyes, and vertigo. He had diarrhœa, began to vomit, which continued three days, and he entered the hospital July 30. At this time he seemed rather dull and complained of headache. The pulse was 44, temperature 99.6°. The patient lay quietly in bed until August 8, complaining of headache and being stupid. The left arm and leg were slightly weaker than the right, and the reflexes were diminished upon this

side. There was neuritis descendens. The left pupil reacted more slowly than the right. There was no facial paralysis, nor of the tongue or uvula. The pulse varied from 44 to 56. August 8 the patient became more stupid and irritable; had a slight convulsion. The urine was negative. Four days later he became brighter, and recognized those about him. The slight loss of power on the left side had gradually disappeared. Until September 3 the pulse varied from 56 to 80. On September 3 it rose to 87. The next day the patient seemed to fail; the pulse 120, temperature 100.5° F. During the last three weeks the patient lay in a semi-stupor, delirious at night; but there was no paresis. September 8 there was a chill; temperature 104.6°, pulse 144; symptoms of cystitis; a convulsion; opisthotonos, patient restless, pupils slightly dilated; conjunctiva slightly sensitive; râles over both lungs; systolic basic murmur. The patient remained stupid four days, when he again brightened and was able to eat alone in bed. September 15 his pulse, which had become depressed, again rose to 102; the temperature rose to 102° F. He again became stupid, but rallied again September 18, when he could with effort be made to answer. He died suddenly September 19.

The calvaria was thin; the pia mater was dull, with considerable serum beneath at the base; the convolutions appeared flat. In the left frontal lobe, above the gyrus fornicatus, was an ovoid mass covered with white brain-substance, projecting to the right of the median line. The mass was one and one-half inches by two inches in its diameters, egg-shaped, and consisted of a clot, partly recent, but principally of some duration, and quite firm. The surrounding brain-substance, extending to the roof of the left lateral ventricle, but not involving the cortex, was undergoing yellow degeneration. The lateral ventricles contained only a slightly-increased amount of serum; the heart was normal; the bladder showed acute inflammation; both kidneys were swollen and congested; the aorta was narrow and its walls thin.

Dr. Heineman called attention to the fact that several cases were now on record in which young men dead of cerebral apoplexy had been found at post mortem to have an abnormally small aorta. He referred to a case of the kind presented to the Society by Dr. Peabody.

Dr. FRANK FERGUSON had seen four specimens removed from the bodies of young men who had died of cerebral apoplexy and in whom the aorta was found to be unusually small.

ARTIFICIAL QUININE BY SYNTHESIS.—Mr. Cresswell Hewett, of England, claims to have successfully solved the problem of making quinine from a common article everywhere present, so that it can be sold at about six cents per ounce.

REVIEWS AND BOOK NOTICES.

TRANSACTIONS OF THE AMERICAN GYNÆCOLOGICAL SOCIETY. Vol. X. For the Year 1885. New York. 8vo, pp. 357.

In this handsomely-printed volume appear the President's Address and the communications made at the Washington meeting. Two rare cases in abdominal surgery illustrating the difficulties in diagnosis in some cases were the subject of the address of the President, by Dr. William T. Howard, of Baltimore. The first was a case of encysted effusion, with tubercular peritonitis simulating uterine fibro-myoma, the fluid from which coagulated spontaneously; the second was a case of suppurative peritonitis, also tubercular, simulating ruptured ovarian cyst. The address and the subsequent discussion were devoted principally to questions of diagnosis and the justifiability of exploratory operation.

Dr. Samuel C. Busey, of Washington, in a paper on the Natural Hygiene of Child-Bearing Life, calls attention to some prevalent dangers to health among women. Puerperal Diphtheria is the title of a paper contributed by Dr. Henry J. Garrigues, of New York, based upon cases occurring in his hospital practice. Irrigation of bichloride solution (1 to 2000) and suppositories of iodoform (iodoform, 3x, amyllum and glycerin, 3j, pulv. acaciæ, 3ij, to make six suppositories for introduction into the uterus). When the patches are spreading, a solution of chloride of zinc is applied on a swab. Besides the local treatment, he gives fluid extract of ergot, morphia, quinine, alcoholic stimulants, and tincture of digitalis. Carbolic acid in one-minim doses every hour is good both as an antiseptic and to combat diarrhœa. Where danger of infection exists, an antiseptic pad is directed to be worn, wrung out of the corrosive-sublimated solution.

Dr. Joseph Taber Johnson reports four cases of oöphorectomy, with remarks, which led to an extended discussion.

Protection of the Peritoneum during Parturition is the subject of an able contribution by Dr. Thad. A. Reamy, of Cincinnati.

Dr. Edward W. Jenks, of Detroit, reports a Case of Cæsarean Operation, with some comments, in a patient who had previously been delivered of a living child, but had subsequently suffered a fracture of the pelvis.

Dr. Ellwood Wilson contributes some Remarks on the Use of Tarnier's Forceps, in which he renounces his previous condemnation of this instrument. He prefers Howard's modification. They are to be used for all applications at the superior strait or high up in the pelvis.

Dr. R. Stansbury Sutton has a paper describing A Modification of Emmet's Cervix Operation in Certain Cases.

Inflammation of the Parotid Glands follow-

ing Operations on the Female Genital Organs is the title of a paper by Dr. William Goodell, of Philadelphia.

The remaining papers are "Peristalsis of the Genital Tract and a New Theory to Explain Relaxation of the Vaginal Outlet," by James R. Chadwick, M.D.; "Facial Paralysis in the New-Born caused by the Forceps," by Theophilus Parvin, M.D.; "The Genu-Pectoral Posture in the Prolonged Nausea and Vomiting of Pregnancy, with Cases," by Henry F. Campbell, M.D.; "Mural Abscesses following Laparotomy," by James B. Hunter, M.D.; "Pelvic Abscess," by William H. Parish, M.D.; and "Laparo-Elytrotomy," by Charles Jewett, M.D.

The papers are, as a rule, decidedly valuable contributions, while the discussions elucidate the subjects considered and illustrate many of the difficulties in diagnosis and uncertainties in practice that are inseparable from a science in a state of progress.

NEW REMEDIES AND CLINICAL NOTES.

TREATMENT OF STRICTURE OF THE URETHRA BY ELECTROLYSIS.—Dr. Robert Newman, of New York, in a communication to the *Medical Record*, gives the following instruction with regard to this valuable method of treatment:

1. Any good galvanic battery will do which has small elements and is steady: the twenty-cell Drescher battery, carbon and zinc, is an excellent instrument, sufficient particularly for the beginner.
2. The fluid for the battery ought not to be used too strong.
3. Auxiliary instruments, as galvanometer, etc., are important to the expert, but are not necessary for the beginner.
4. For the positive pole a carbon electrode is used, covered with sponge moistened with hot water, and held firmly against the cutaneous surface of the patient's hand, thigh, or abdomen.
5. For the absorption of the stricture the negative pole must be used.
6. Electrode-bougies are firm sounds insulated with a hard-baked mass of rubber; the point is a metal bulb, egg-shaped, which is the acting part in contact with the stricture.
7. The curve of the bougie is short: large curves are mistakes.
8. The plates must be immersed in the fluid before the electrodes are placed on the patient, and raised again after the electrodes have been removed.
9. All operations must begin and end while the battery is at zero, increasing and decreasing the current slowly and gradually by one cell at a time, avoiding any shock to the patient.

10. Before operating, the susceptibility of the patient to the electric current should be ascertained.

11. The problem is to absorb the stricture, not to cauterize, burn, or destroy tissues.

12. *Weak currents at long intervals.*

13. In most cases a current of six cells, or from two and a half to five milliamperes, will do the work; but it must be regulated according to the work to be done.

14. The séance should be at intervals not too frequent in succession.

15. The best position for the patient to assume during the operation is that which is most comfortable for himself and the operator. I prefer the erect posture, but the recumbent or others may be used.

16. Anæsthetics I like to avoid: I want the patient conscious, so that he can tell how he feels.

17. Force should never be used; the bougie must be guided in the most gentle way; the electricity alone must be allowed to do the work.

18. During one séance, two electrodes in succession should never be used.

19. All strictures are amenable to the treatment by electrolysis.

20. Pain should never be inflicted by the use of electrolysis: therefore it should not be applied when the urethra is in an acute or even subacute inflammatory condition.

ANIMAL VACCINE.—Dr. Charles R. Drysdale read a paper at the meeting of the British Medical Association on "The Superiority of Animal Vaccine." In 1877 he had studied animal vaccination in Brussels, at Dr. Warlomont's institution, and then had recommended in the Medical Society of London that calf-lymph should take the place of long-humanized lymph, for three reasons: 1, because in times of epidemics of smallpox calf-lymph could be had in quite unlimited quantities; 2, because it could not be accused of conveying syphilis; and, 3, and by far the most important of all, because evidence showed that animal vaccination was considerably more protective against smallpox than long-humanized lymph. This latter was proved by the remark of Dr. Warlomont that, in the terribly severe epidemic of smallpox of 1870-71, no person who had been vaccinated with animal lymph took the disease, and by the evidence given by Dr. Martin, the great vaccinator of the United States, recently deceased, that he had offered a reward of one hundred pounds to any one who should show him a case of smallpox which had occurred in a patient vaccinated by him with animal vaccine, and that no one had been able to claim the reward offered. Mr. Babcock, a chemist of Brighton, had clearly shown, by inoculating some two hundred cows with smallpox matter and obtaining a vaccine vesicle in thirty-three cases, that smallpox and vaccine were the

same disease, and that when we vaccinated ourselves we merely took a mild attack of smallpox. At the beginning of the century, when the illustrious Jenner was alive, human lymph was more preventive than now, because nearer to animal vaccine, and we should, therefore, as had been done in the United States, abandon the use of humanized arm-to-arm vaccination, and have recourse solely to calf-lymph for vaccination.—*Medical Record*.

A NEW CAUSE OF PRESYSTOLIC MURMUR.—At the meeting of the Medical Section of the Academy of Medicine in Ireland, Dr. Finny called attention to an additional cause of presystolic murmur which had recently come under his own observation, and no other example of which he had yet found. In Sir Patrick Dun's Hospital there was a case of simple hypertrophy of the left ventricle from cirrhosis of the kidney. Subsequently dilatation of the cavity had taken place, and there was the systolic sound of mitral regurgitation of a functional nature,—a case of weakening muscle already in a state of hypertrophy. During the last ten days of the patient's life in hospital a new murmur developed,—namely, a presystolic murmur. He could not then explain it; but after death, which ensued on epileptic convulsions of the uræmic type, he discovered the cause. Looking at the heart, there was hypertrophy of the left ventricle, with some dilatation; but all around the mitral curtains there was a large mass of fibrin deposited as large as a filbert, especially behind the ventricular aspect of the posterior valve. He believed that to be the true explanation of the presystolic murmur during the last ten days. Embolism was recognized during life, due doubtless to this thrombus, and there was an enormous obstruction of the spleen, the largest he ever saw; but he was not prepared to find so large a quantity of ante-mortem clot existing in that condition, nor was he aware that such a condition could produce such a narrowing of the orifice as to produce a presystolic murmur.—*Dublin Journal of Medical Science*.

MICROBES AS FACTORS IN THE FORMATION OF FOREIGN BODIES AND CALCULI.—At the Paris Biological Society, M. Galippe stated that he had examined arthropytes removed from a knee, and had observed microbes in them the same as he had detected in calculi removed from the bladder; he had isolated them and cultivated them. This investigator is therefore confirmed in his belief that the crystallizations found in the human economy develop through the agency of microbes; then microbes are pathogenic parasites of the foreign bodies of the animal economy, whatever may be the chemical composition of these bodies and wherever they may be found.—*New Orleans Med. and Surg. Journal*.

MISCELLANY.

THE private hospital of Dr. William H. Pancoast, conveniently located at 1006 Walnut Street, Philadelphia, is now open for the reception of surgical patients. The experience of the first year of this institution has proved its usefulness. It is fitted up with the modern conveniences, with baths, Fleming's electrical cabinet, etc., and has a resident physician and trained nurses always in attendance.

DRS. WARDER AND MONTGOMERY have formally opened their new private operating hospital, located at 1601 Master Street. It is complete in its appointments for the treatment of gynecological cases.

J. WILLIAM WHITE, M.D., has been elected Professor of Genito-Urinary Diseases in the Medical Department of the University of Pennsylvania.

DR. WILLIAM H. GREENE has removed to 204 North Thirty-Sixth Street, Philadelphia.

DR. S. D. RISLEY has removed to 1722 Walnut Street.

DR. ADDINELL HEWSON, JR., has removed to 1816 Spruce Street, Philadelphia.

NOTES AND QUERIES.

A CASE OF STRYCHNINE-POISONING.

DEAR SIR,—I report the following case of strychnine poisoning merely to place it upon record.

September 26, 1884, about 7 P.M., I was hurriedly called to see E. N. G., a large, robust man, age 42, weight about two hundred pounds, who had in a condition of semi-intoxication "taken a teaspoonful of strychnine." I reached the patient one hour after the ingestion of the poison, found him suffering terribly with intense muscular rigidity, especially about the cervical, dorsal, lumbar, and sacral regions, and well-marked muscular twitching about the face, arms, and legs. No convulsions or loss of consciousness. His wife exhibited to me a one-ounce strychnine-vial one-third full of sulphate of strychnine, saying she had used not above one-third of the original amount contained in the vial for the purpose of destroying rats, and her husband had taken the rest by pouring it into a teaspoon and dissolving it in half a glass of water; which would be one-third of the original contents of the vial, or twenty grains.

Treatment, thirty grains of sulphate of zinc and one drachm of fluid extract ipecac in a teacupful of warm water, which acted promptly as an emetic. In twenty minutes the same dose was repeated, again acting thoroughly. I then gave sixty grains of bromide of potassium and thirty grains of hydrate of chloral, and repeated this dose in one hour. Two hours following, half the dose; and the next two hours, half the dose. Thus in about five hours he had taken one hundred and eighty grains of bromide and ninety grains of chloral. Further treatment was then discontinued, as patient was in a quiet sleep and muscular relaxation rapidly going on.

Called to see him the following morning at nine o'clock. Found him in the yard, splitting wood. No further unfavorable symptoms.

Very respectfully, D. DUNKLIN.

BONNE TERRE, MISSOURI, October 4, 1886.

CALOMEL TREATMENT OF CROUP.

MR. EDITOR.—I notice in the report of the proceedings of the Eighth Annual Session of the American Laryngological Society that Dr. William H. Daly, of Pittsburg, notices the calomel-treatment of croup. He appears to consider croup and diphtheria as one and the same, and would seem to make calomel the best medicine for all kinds of croup.

In this, after considerable experience, I differ from him. For more than thirty years I have treated inflammatory croup with small doses of calomel repeated every hour, and found it the most successful practice. I have sought its alterative effects, and have restrained by a very little opium its action on the bowels, deprecating whatever debilitates. But a few dark, bilious stools are not hurtful, but rather a good omen. However, the strength of the child must be husbanded till the cough gradually softens, the breathing improves, and the voice returns.

But I do not think the calomel should be relied on alone. The important adjunct of steam should never be dispensed with, and an occasional emetic of turpentine mineral and ipecac in the very early stage is of much benefit.

I have tried the calomel-treatment in several cases of diphtheritic croup, but have not as yet seen any benefit from its use. Diphtheria seems too asthenic in its nature for the use of mercury.

The old American physicians appear to have become acquainted with the benefits of calomel in croup before Dr. Hamilton and others in Europe. See Stillé's "Therapeutics," vol. ii. p. 714.

I think Dr. Daly has done well to call attention to this important remedy in a disease that so often baffles the best skill of the best men.

ALEX. W. ROGERS.

PATERSON, NEW JERSEY, September 30, 1886.

OFFICIAL LIST

OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY FROM SEPTEMBER 26, 1886, TO OCTOBER 9, 1886.

MAJOR DALLAS BACHE, SURGEON.—Granted leave of absence for twenty-five days, to take effect on or about October 2, 1886. S. O. 143, Division of the Atlantic, September 24, 1886.

MAJOR JOSEPH R. GIBSON, SURGEON.—Granted two months' leave of absence from September 25, 1886, on surgeon's certificate of disability, in lieu of the unexpired portion of the ordinary leave of absence granted him in S. O. 158, A. G. O., July 10, 1886. S. O. 227, A. G. O., September 30, 1886.

MAJOR WILLIAM H. GARDNER, SURGEON.—Ordered from Department of Texas to Department of the East. S. O. 227, A. G. O., September 30, 1886.

CAPTAIN WASHINGTON MATTHEWS, ASSISTANT-SURGEON.—Granted leave of absence for one month and twelve days, with permission to go beyond sea. S. O. 232, A. G. O., October 6, 1886.

CAPTAIN DANIEL M. APPEL, ASSISTANT-SURGEON.—Assigned to duty at Fort Davis, Texas. S. O. 133, Department of Texas, September 22, 1886.

FIRST-LIEUTENANT W. W. R. FISHER, ASSISTANT-SURGEON.—Leave of absence extended one month. S. O. 230, A. G. O., October 4, 1886.

FIRST-LIEUTENANT WILLIAM C. BORDEN, ASSISTANT-SURGEON.—Relieved from temporary duty at Fort Bridger, Wyoming, and ordered to return to his station, Fort Douglas, Utah. S. O. 126, Department of the Platte, October 2, 1886.

FIRST-LIEUTENANT PHILIP G. WALES, ASSISTANT-SURGEON.—Leave of absence extended to include November 5, 1886. S. O. 226, A. G. O., September 29, 1886.

FIRST-LIEUTENANT WILLIAM P. KENDALL, ASSISTANT-SURGEON.—Granted leave of absence for one month. S. O. 81, Division of the Pacific, September 24, 1886.

FIRST-LIEUTENANT CHARLES F. MASON, ASSISTANT-SURGEON.—Ordered for temporary duty at Fort Verde, Arizona Territory. S. O. 90, Department of Arizona, September 20, 1886.

COLONEL JOHN F. HAMMOND, U. S. ARMY (Retired).—Died at Poughkeepsie, New York, September 29, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FROM SEPTEMBER 12, 1886, TO OCTOBER 9, 1886.

PASSED ASSISTANT-SURGEON M. H. SIMONS, PASSED ASSISTANT-SURGEON E. NORFLEET.—Detached from the "Alert" and placed on waiting orders.

MEDICAL-INSPECTOR E. S. BOGERT.—Ordered to Navy-Yard, New York, September 28, 1886.

PASSED ASSISTANT-SURGEON D. M. GUITERAS.—To Receiving-Ship "Franklin" for temporary duty, October 3, 1886.

ASSISTANT-SURGEON A. R. WENTWORTH.—Detached from Navy-Yard, League Island, and to the U.S.S. "Galena," October 1, 1886.

ASSISTANT-SURGEON H. B. SCOTT.—Ordered to Navy-Yard, New York, October 1, 1886.

PASSED ASSISTANT-SURGEON RICHARD ASHBRIDGE.—Detached from the U.S.S. "Sahara" October 1, 1886, and granted six months' leave.

ASSISTANT-SURGEON T. A. BERRYHILL.—Detached from the Museum of Hygiene and ordered to Receiving-Ship "Minnesota."

PASSED ASSISTANT-SURGEON GEORGE ARTHUR.—Detached from the Navy-Yard, New York, and ordered to the Museum of Hygiene.

PASSED ASSISTANT-SURGEON H. T. PERCY.—Detached from the U.S.S. "Galena," proceed home, and wait orders.

ASSISTANT-SURGEON JOSEPH SHAFER.—Detached from the U.S.S. "Minnesota," and ordered to the U.S.S. "Swatara."

PASSED ASSISTANT-SURGEON J. M. STEELE.—Detached from Naval Academy and granted six months' leave.

PASSED ASSISTANT-SURGEON CLERMONT BIDDLE.—Ordered to Naval Academy, Annapolis, Maryland.

MEDICAL-DIRECTOR JAMES SUDDARDS.—Will convene Medical Board October 6, 1886.

MEDICAL-DIRECTOR J. MILLS BROWNE.—Ordered to report to President of Medical Board October 6, 1886.

MEDICAL-DIRECTOR R. C. DEAN.—Ordered to report to President of Medical Board October 6, 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE TWO WEEKS ENDED OCTOBER 9, 1886.

PURVIANCE, GEORGE, SURGEON.—Granted leave of absence for twenty-five days, September 30, 1886.

STONER, G. W., SURGEON.—Granted leave of absence for twenty-three days, October 1, 1886.

CARTER, H. R., PASSED ASSISTANT-SURGEON.—To proceed to Galveston, Texas, as inspector, September 30, 1886.

AMES, R. P. M., PASSED ASSISTANT-SURGEON.—Granted leave of absence for thirty days, to take effect when relieved, September 30, 1886.

WASDIN, EUGENE, ASSISTANT-SURGEON.—Ordered to examination for promotion, September 30, 1886.

BROOKS, S. D., ASSISTANT-SURGEON.—Granted leave of absence for thirty days, to take effect when relieved, September 30, 1886.

WILLIAMS, L. L., ASSISTANT-SURGEON.—Relieved from duty at Mobile, Alabama; ordered to Marine Hospital, Wilmington, North Carolina, September 27, 1886.

PERRY, T. B., ASSISTANT-SURGEON.—Relieved from duty at San Francisco, California; ordered to Marine Hospital, St. Louis, Missouri, October 1, 1886.

PECKHAM, C. T., PASSED ASSISTANT-SURGEON.—Granted leave of absence for thirty days, to take effect when relieved, October 5, 1886.

KALLOCH, P. C., PASSED ASSISTANT-SURGEON.—Granted leave of absence for twenty-one days, to take effect when relieved, October 5, 1886.

PETTUS, W. J., ASSISTANT-SURGEON.—To proceed to Evansville, Indiana, for temporary duty, October 8, 1886.

KINYOUN, J. J., ASSISTANT-SURGEON.—Appointed an Assistant-Surgeon October 4, 1886; assigned to temporary duty at New York, October 5, 1886.